ennoia

Advances in Social Science, Technology and Education

Volume 01 | Issue 02

ISSN **3116-207X**

September 2025

CC BY

https://ennoia-asste.org

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**

DOI: **10.5281/zenodo.17118682**

CC BY

EDITORIAL

This issue brings together a collection of studies that advance critical discussions on curriculum reform, pedagogical practice, and educational outcomes in the Philippine context. Central to the volume are inquiries into the MATATAG Curriculum, with analyses of lesson exemplars in English, Mathematics, and Edukasyong Pantahanan at Pangkabuhayan (EPP), as well as explorations of transformative learning and ICT integration. These contributions offer valuable perspectives on the design, implementation, and pedagogical implications of current reforms.

Complementing these are studies that situate educational experiences within broader temporal and structural contexts, including examinations of senior high school learners' perceptions of school day duration, Grade 6 academic performance across the COVID-19 pandemic, and the role of digital learning tools in shaping student engagement and achievement in higher education. Further, the comparative analysis of global practices and the TESDABest 8-Point Agenda underscores the significance of aligning Philippine TVET with international standards of 21st-century readiness.

Collectively, these works enrich the scholarly discourse on education by providing empirical evidence and analytical insights that may inform both theory and practice. They underscore the necessity of continuous research to ensure that educational policies and innovations remain responsive to the evolving needs of learners and society.

Editor-in-Chief

CHELOU M. TIZON, PhD
Ozamiz City School of Arts and Trades
Ozamiz City, Philippines
chelou.tizon@deped.gov.ph

Editors / Reviewers

CANDELARIA P. MAGHANOY, PhD
Misamis Annex Integrated School
Ozamiz City, Philippines
candelaria.maghanoy@deped.gov.ph

JEAN B. ALINDO, EdD
Ozamiz City School of Arts and Trades
Ozamiz City, Philippines
jean.alindo@deped.gov.ph

JANET D. BARRERA, EdD
J.H. Cerilles State College
Zamboanga del Sur, Philippines
janetlarabarrera0430@gmail.com

ANOUAR EL MALIHI, PhD
Mohammed V University
Rabat, Morocco
anouar.elmalihi@uit.ac.ma

ALFREDO D. BISCOCHO, PhD, JD
Immaculate Conception School of Technology of Ozamiz City, Inc.
Ozamiz City, Philippines

DANILO S. YOLIM, EdD, PhD, JD
Medina College, Inc.
dyolim74@gmail.com

EUNNEL M. MACARAYO, DM
Ozamiz City School of Arts and Trades
Ozamiz City, Philippines
eunnel.macarayo@deped.gov.ph

LUISANDER C. LUY, DIT
Department of Education – Ozamiz City
Ozamiz City, Philippines
luisander.luy@deped.gov.ph

BENJAMIN SELEKE, PhD
Walter Sisulu University
Eastern Cape, South Africa
bseleke@wsu.ac.za

MYLA JANE Y. JEREZ, DM
Tangub City Global College
Tangub City, Philippines
mylajanejerez0203@gmail.com

Publisher

RYANN B. LABAD
International Association of Open Educators, Inc.
National Highway, Purok Matinud-anon, Maningcol
Ozamiz City PHILIPPINES 7200
+63 908 992 2797
publisher@ennoia-asste.org

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**
DOI: **10.5281/zenodo.16979640**

Senior High School Learners' Perception on School Day Duration

Ryann B. LaBad, Doone Heart S. Cabuguas, Mariel R. Cabuguas, Cindy C. Hubahib, & Julita H. Bitay
Ozamiz City School of Arts and Trades, *Philippines*

Abstract

This study investigates the perceptions and preferences of senior high school students regarding the optimal length of the school day and its potential impact on student engagement. Recognizing the growing concern over excessively long school hours and their possible effects on learners' well-being and academic efficiency, the research aimed to explore how students experience and evaluate their current school schedules. Utilizing a mixed-methods approach, the study surveyed 271 senior high school students. The findings revealed that a significant majority of students perceive the current school day, typically lasting 7 to 9.5 hours, as excessively long. Most expressed a preference for a shorter school day of 5 to 6 hours, primarily to allow more time for rest, personal development, and independent study. Students also favored a school start time between 7:00 and 8:00 a.m., highlighting the need for adequate morning preparation. Mid-morning and early morning hours were identified as the most effective periods for learning. Despite extended instructional time, international assessments suggest that academic performance remains low, raising concerns about the efficiency of time spent in school. These findings underscore the importance of aligning school schedules not only with curriculum demands but also with students' cognitive readiness, well-being, and engagement.

Keywords: school day duration, school day length, academic scheduling, senior high school

Recommended Citation:

LaBad, R. B., Cabuguas, D. H. S., Cabuguas, M. R., Hubahib, C. C., & Bitay, J. H. (2025). Senior High School Learners' Perception on School Day Duration. *Ennoia Advances in Social Science, Technology and Education, 01*(02), 3-22. https://doi.org/10.5281/zenodo.16979640

(LaBad et al., 2025)

Correspondence[*]

[*]*For correspondence regarding this article*:
RYANN B. LABAD
Teacher II
Ozamiz City School of Arts and Trades
Maningcol, Ozamiz City, Philippines 7200
+63 908 992 2797 | (088) 531-4084
ryann.labad@deped.gov.ph

1. Introduction

Understanding the optimal length of the school day for maximizing student engagement and learning outcomes has long been a topic of debate among educators and researchers. However, existing research on the impact of school day duration on academic achievement has yielded mixed results, highlighting a complex relationship influenced by various factors. For example, studies have consistently found that socioeconomic status (SES) is a stronger predictor of student performance than school day length, which has shown minimal influence on standardized test scores (Sammarone, 2016; DeAngelis, 2014; Plevier, 2016). This suggests that while time spent in school is important, it may not be the sole factor affecting academic outcomes.

Despite these findings, some research points to a nuanced effect of school day length. While Sammarone (2016) and DeAngelis (2014) reported a small yet statistically significant link between extended school days and improved test scores, Plevier (2016) found no significant correlation. Additional elements, such as student attendance, mobility, disabilities, and staff educational background, have also been shown to play critical roles in influencing academic success (Sammarone, 2016; Plevier, 2016). This suggests that school day length alone may not be a major determinant of academic performance and underscores the importance of considering these other factors.

Notably, Wu (2020) found that longer school days, rather than extended school years, could have a positive impact on students from disadvantaged backgrounds, who benefitted from the "spillover effects" of additional time in non-tested subjects. These findings indicate that school day configuration might contribute to engagement and equity, especially for students in challenging socioeconomic circumstances.

Given this complexity, exploring students' own perceptions and preferences regarding school day duration may shed light on how the structure of the school day aligns with their engagement. By understanding these perspectives, this study seeks to provide insights into the factors students feel contribute to an optimal learning experience, potentially informing more effective school scheduling practices. Furthermore, the aim of this research is to explore learner perceptions and preferences regarding the optimal length of the school day and its potential impact on student engagement. This study seeks to address the gap in the current literature by examining how students feel about the length of their school day. By investigating these factors, the study aims to provide valuable insights that could inform policy decisions on school day structures, ensuring they align with students' needs and contribute to enhanced educational experiences.

2. Review of Literature

Various researches suggest that socioeconomic factors, student attendance, and instructional quality may play a larger role in determining academic outcomes than the sheer number of hours spent in school (Sammarone, 2016; DeAngelis, 2014; Plevier, 2016). However, studies such as Wu (2020) have demonstrated that extended school days can

positively impact students, particularly those from disadvantaged backgrounds, by providing additional opportunities for engagement in non-tested subjects. Despite these findings, gaps remain in understanding how students themselves view the relationship between school day length and their ability to remain engaged, manage their personal time, and achieve academic success.

The optimal length of the school day and its impact on student engagement and academic performance has been a longstanding focus in education research. Comparative studies reveal considerable international variation in school day duration, from approximately 4.5 to 10 hours (World Population Review, 2024). Taiwan has one of the longest school days, averaging 10 hours, while countries such as Finland and Brazil, which prioritize educational efficiency and student well-being, maintain an average school day of 5 hours. Germany's shorter school day of 4.5 hours further illustrates the diversity in educational structures and values across different contexts.

Research on extended learning time (ELT) has produced mixed findings regarding its effectiveness in enhancing academic outcomes. Gurung (2022) found that prolonged school hours did not yield significant improvements in examination performance, suggesting that optimizing instructional time may be more effective than simply increasing it. Similarly, Cattaneo, Oggenfuss, and Wolter (2017) observed that supplementary instructional hours dedicated to remediation, enrichment, or private tutoring did not have a significant impact on achievement unless tailored to individual student needs. Their findings underscore the importance of individualized instructional time, particularly for students with lower academic abilities, who may benefit more from extended hours than higher-achieving peers.

The effectiveness of study hours outside of school further complicates the discussion. Baliyan and Khama (2020) reported that extended study hours positively influenced Mathematics performance but had no significant effect on English achievement, underscoring the importance of subject-specific learning demands. In line with this, Liu (2022) argued that while increased study time correlates with academic performance, the benefits plateau beyond a certain threshold, beyond which additional hours do not significantly contribute to academic gains. This perspective aligns with findings by the OECD (2020), which noted that instructional time in language subjects enhanced reading performance only up to three hours per week, reinforcing the notion that instructional quality may supersede duration.

Evidence also suggests that longer school days may disproportionately benefit socioeconomically disadvantaged students. Wu (2020) observed that lengthening the school day—rather than the school year—yielded substantial benefits for underprivileged students, particularly in providing exposure to non-tested subjects, thus contributing to a more holistic educational experience. In Colombia, Hincapie (2016) demonstrated that an extended school day positively impacted student performance, particularly in Mathematics and among students in disadvantaged rural areas. Likewise, Garcia, Fernandez, and Weiss (2013) found that a transition from half-day to full-day schooling reduced dropout rates and grade repetition, highlighting the socio-academic advantages of increased instructional hours.

However, the impact of additional instruction time is not uniformly positive. Research suggests that an increase in instructional hours may inadvertently exacerbate performance disparities among students. Huebener, Kuger, and Marcus (2017) noted that extended instructional time can widen achievement gaps between lower- and higher-performing students. Barrios Fernández (2023) similarly cautioned that the quality of in-school learning experiences must be balanced against students' home learning opportunities to maximize benefits, particularly for students with fewer resources.

Despite the potential benefits of lengthened school days, some scholars question its efficacy. Walden University (n.d.) highlighted that although extended school hours could alleviate childcare burdens and increase instructional time, they may also limit students' opportunities for rest, leisure, and extracurricular engagement, which are crucial for holistic development. Supporting this perspective, Sammarone (2014) and DeAngelis (2014) found that factors such as socioeconomic status, student attendance, and teacher qualifications were more substantial predictors of student achievement than school day length. Additionally, Ezeonu et al. (2017) contended that effective time utilization, rather than mere extension, should be the focal point of educational policy.

These varied findings illustrate the complexities inherent in the relationship between school day length and academic outcomes. Current literature suggests that while instructional time is a key educational variable, its structure, content, and alignment with students' developmental needs warrant careful consideration to maximize learning outcomes and ensure equitable educational practices. However, studies based on the point of view of the learners are quite scant, thus, this study aims to explore the learners' perception and preference regarding the length of the school day and the optimal learning time.

3. Method

The aim of this research is to explore learner perceptions and preferences regarding the optimal length of the school day and its potential impact on student engagement. This study seeks to address the gap in the current literature by examining how students feel about the length of their school day. By investigating this factor, the study aims to provide valuable insights that could inform policy decisions on school day structures, ensuring they align with students' needs and contribute to enhanced educational experiences. Through a mixed-methods approach, the research combines quantitative and qualitative data to capture a comprehensive picture of student preferences and the nuanced ways in which school day duration impacts engagement.

3.1. Design of the Study

The study adopted a mixed-methods research design to examine learners' perceptions and preferences regarding school day duration. Previous research on the influence of school day length has employed diverse methodologies, with quantitative studies identifying broad trends in academic performance (Wu, 2020; Sammarone, 2014) and qualitative studies providing in-depth insights into individual experiences and engagement patterns (Gurung, 2022; Liu, 2022). Given the multifaceted nature of this

research topic, the integration of both quantitative and qualitative approaches allowed for a comprehensive analysis, capturing general trends while also exploring the contextual factors influencing student engagement.

A mixed-methods approach was particularly suitable for this study as it addressed both measurable outcomes and subjective perceptions, which are essential in understanding complex social phenomena such as student engagement and optimal learning environments (Creswell & Plano Clark, 2017). The quantitative component consisted of a structured survey designed to measure students' preferred school day duration and perceived engagement levels. The qualitative component included focus groups and individual interviews, which provided deeper insights into the reasons behind students' preferences and the contextual factors affecting their engagement throughout the day.

The selection of this design aligned with prior studies emphasizing the advantages of integrating quantitative and qualitative data in educational research (Tashakkori & Teddlie, 2010). The complementary nature of these methods enabled the study to explore not only what school day length students preferred but also why they felt more or less engaged at different durations. This approach ensured that the findings were both statistically robust and contextually rich, offering a nuanced understanding of student perceptions (Johnson et al., 2007).

Additionally, the study employed a descriptive survey research design to systematically collect data on learners' perceptions and preferences. A descriptive survey design was well-suited for this research as it facilitated the collection of structured data that could be analyzed to describe, explain, and interpret the perspectives of a large population (Creswell & Creswell, 2018). This design was particularly appropriate for capturing attitudes, beliefs, and preferences, as it enabled the efficient gathering of data from a broad sample of participants (Fraenkel et al., 2019, as cited in Smolinsky et al., 2022).

The survey instrument utilized a 5-point Likert scale, allowing participants to express their level of agreement or preference on various statements. This approach ensured that the data collection process was efficient and allowed for statistical analysis to identify trends and patterns in learners' perceptions and preferences (Groves et al., 2009). The descriptive survey design supported the study's objective of generating evidence-based insights that can inform school administrators, educators, and policymakers in designing effective and engaging learning environments.

3.2. Locale of the Study

This study was conducted at the Ozamiz City School of Arts and Trades (OCSAT), a public technical-vocational high school located in Ozamiz City, Misamis Occidental, Philippines. Established to provide accessible and quality technical-vocational education, OCSAT caters to junior and senior high school students, particularly those enrolled in the Technical-Vocational-Livelihood (TVL) track.

The school is recognized for its diverse offerings of TVL specializations, including Electrical Installation and Maintenance, Automotive Servicing, Plumbing, and Bread and Pastry Production, among others. OCSAT aims to equip learners with the practical skills and

competencies required to succeed in industry-specific careers or entrepreneurship upon graduation. The institution also emphasizes aligning its curriculum with labor market demands, ensuring that its graduates are competitive both locally and globally (DepEd, 2021).

Strategically situated in Ozamiz City, OCSAT serves students from various socioeconomic backgrounds, including those from remote barangays and neighboring municipalities. This diversity provided a unique perspective on educational needs, preferences, and challenges, making it an appropriate setting for this research on learners' perceptions and preferences regarding school day duration.

3.3. Respondents of the Study

The respondents included in this study consisted of 271 senior high school students enrolled at the Ozamiz City School of Arts and Trades (OCSAT) during the second semester of School Year 2024–2025. These individuals were selected through availability sampling, ensuring that the study included participants who were accessible and willing to participate at the time of data collection.

The sample represented students from various strands from Academic and TVL tracks offered by the institution, reflecting the diversity of academic and practical workloads within the senior high school curriculum. Given their direct experience with the existing school day structure, the respondents provided valuable insights into how the duration of the school day influenced their engagement, learning experiences, and overall academic performance.

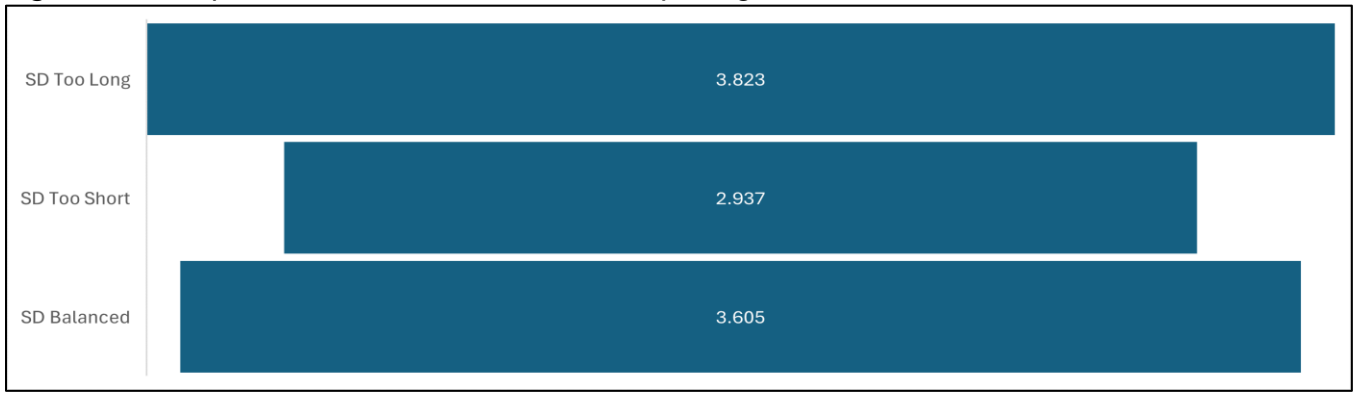
By focusing on respondents from a single semester, the study provided a detailed snapshot of learners' perceptions and preferences during that specific academic period. The use of availability sampling allowed for the efficient collection of relevant data while ensuring that the findings captured a broad range of student perspectives on the optimal school day duration.

4. Results

4.1. Perceived School Day Length

This study reveals that most of the students perceived the school day to be too long, see Figure 1. The perception is measured through a 5-point Likert scale based on their agreement on the statements whether they believe that their school day is too long, too short, or practically balanced. The scoring was 1 = Highly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Highly Agree. The bars represent the mean scores of the samples, namely, SD Too Long = 3.823, SD Too Short = 2.937 and SD Balanced = 3.605. Based on the group mean, the learners are likely to agree that their school day is too long.

Figure 1. *Perception of Learners on School Day Length*



Legend: SD = School Day
Note: 1.00 = Strongly Disagree … 5.00 = Strongly Agree

To determine whether there is a significant difference between the three treatments (SD Too Long, SD Too Short and SD Balanced), a repeated measures analysis of variance (ANOVA) was conducted. Since Mauchly's test of sphericity indicated that the assumption of sphericity is violated (< p = .05), Greenhouse-Geisser sphericity correction was employed, and the repeated measures ANOVA yielded a p-value of < .001. With this, it is safe to assume that there was a significant difference among the repeated measure factors. See Table 1 for reference.

Table 1. *Repeated Measures ANOVA of Perceptions of Learners on School Day (SD)*

Within Subjects Effects						
Cases	Sphericity Correction	Sum of Squares	df	Mean Square	F	p
Perceptions on SD Length	Greenhouse-Geisser	115.427	1.942	59.432	77.931	< .001
Residuals	Greenhouse-Geisser	399.907	524.387	0.763		

Note: Type III Sum of Squares
[a] Mauchly's test of sphericity indicates that the assumption of sphericity is violated (p < .05).

Descriptives					
Perceptions on SD Length	N	Mean	SD	SE	Coefficient of variation
SD Too Long	271	3.823	0.872	0.053	0.228
SD Too Short	271	2.937	0.996	0.061	0.339
SD Balanced	271	3.605	0.875	0.053	0.243

Test of Sphericity							
	Mauchly's W	Approx. χ^2	df	p-value	Greenhouse-Geisser ε	Huynh-Feldt ε	Lower Bound ε
Perceptions on SD Length	0.970	8.131	2	0.017	0.971	0.978	0.500

Post Hoc Comparisons - Perceptions on SD Length							
		Mean Difference	SE	df	t	p_{bonf}	p_{holm}
SD Too Long	SD Too Short	0.886	0.074	540	11.979	< .001	< .001
	SD Balanced	0.218	0.074	540	2.945	0.010	0.003
SD Too Short	SD Balanced	-0.668	0.074	540	-9.034	< .001	< .001

Note: P-value adjusted for comparing a family of 3 estimates.

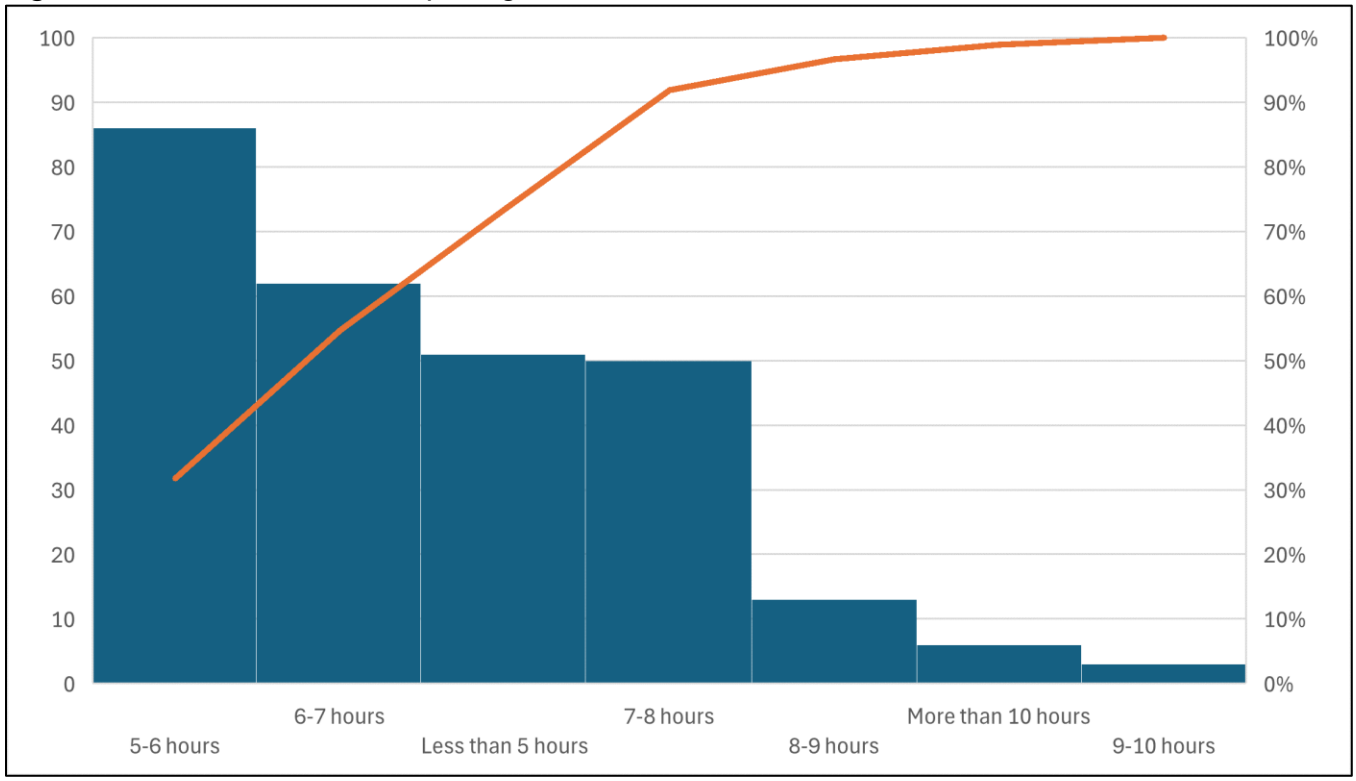
Conover's Post Hoc Comparisons - Perceptions on SD Length									
		T-Stat	df	W_i	W_j	r_{rb}	p	p_{bonf}	p_{holm}
SD Too Long	SD Too Short	12.039	540	619.000	417.500	0.793	< .001	< .001	< .001
	SD Balanced	1.763	540	619.000	589.500	0.254	0.079	0.236	0.079
SD Too Short	SD Balanced	10.277	540	417.500	589.500	-0.689	< .001	< .001	< .001

Note: Grouped by subject.
Note: Rank-biserial correlation based on individual signed-rank tests.

4.2. Preferred School Day Length

Figure 2 illustrates that most of the learners favor the school day to be 5-6 hours in length. The option of 6-7 hours comes next with near differences to less than 5 hours and 7-8 hours. A few selected 8-9 hours, more than 10 hours and 9-10 hours.

Figure 2. *Preferred School Day Length*



The correlation and dependence of the preferred school day length with the perceived school day length were tested. Table 2 indicates that, pairwise, the learners' preference for the school day length has no significant correlation and dependence with both the learners' perceived too long school day (0.409; 0.399) and too short school day (0.691; 0.660). However, paired with the perceived practically balanced school day, although there exists a high significance, the correlation (0.186) and dependence (0.158) are both practically negligible.

Table 2. *Correlation between Preferred School Day Length and Perceived School Day Length*

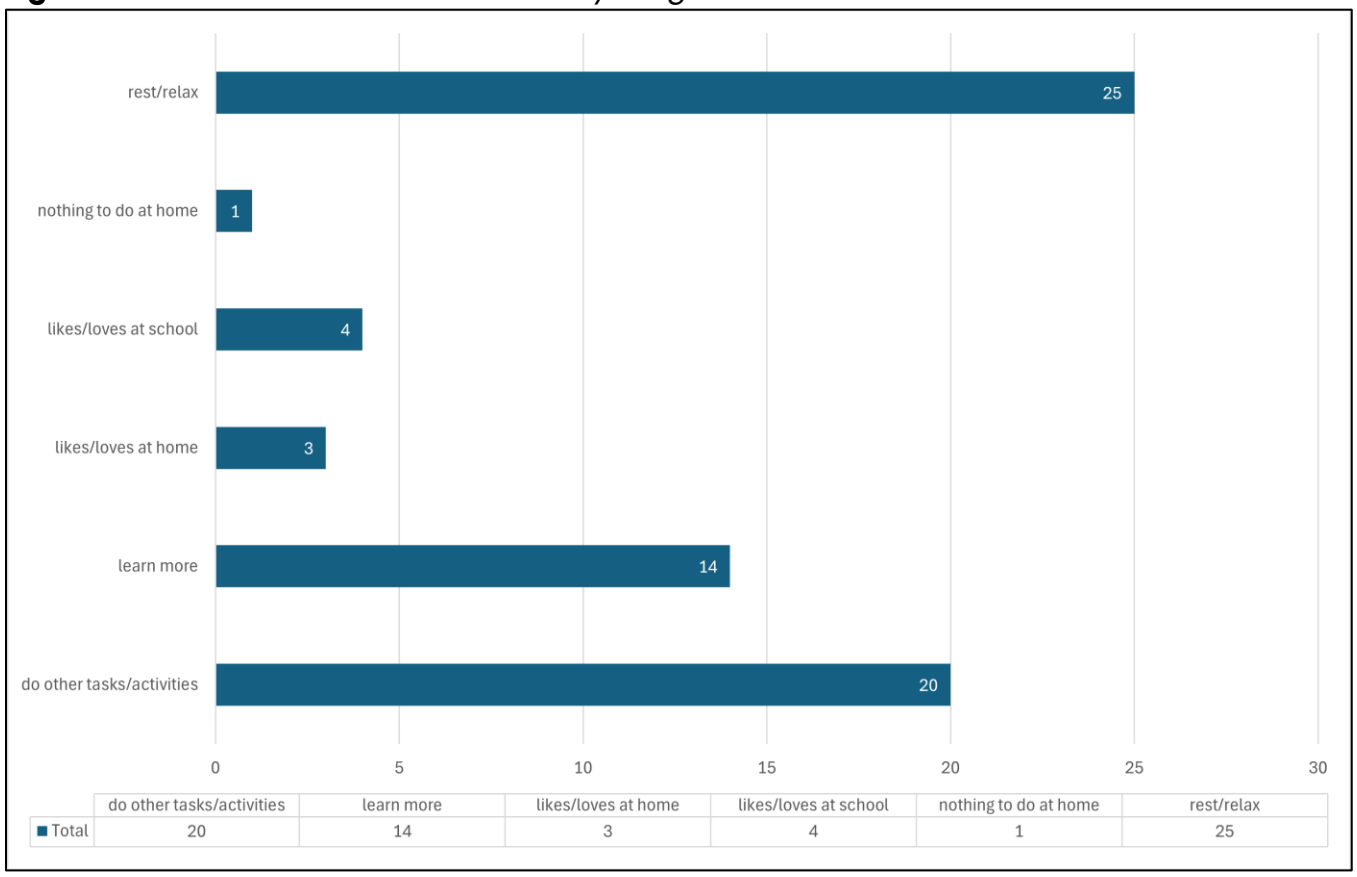
Correlation Table

		Spearman		Kendall	
		rho	p	tau B	P
Preferred School Day Length	- Believes School Day is Too Long	-0.050	0.409	-0.043	0.399
Preferred School Day Length	- Believes School Day is Too Short	0.024	0.691	0.022	0.660
Preferred School Day Length	- Believes School Day is Practically Balanced	0.186	0.002	0.158	0.002

4.3. Learner's Reason for Preferred School Day Length

Based on the data obtained from the qualitative question, what was the reason for the student's preference of school day length, Figure 3 shows that the three most dominant are for resting and relaxing (frequency = 25), doing other tasks or activities (frequency = 20), and learning more or improving academic skills (frequency = 14). Some students consider prefer their school day duration because they like to be at school (frequency =4), some prefer to stay at home (frequency = 3), and others just because they have nothing to do at home (frequency = 1).

Figure 3. *Reason for Preferred School Day Length*



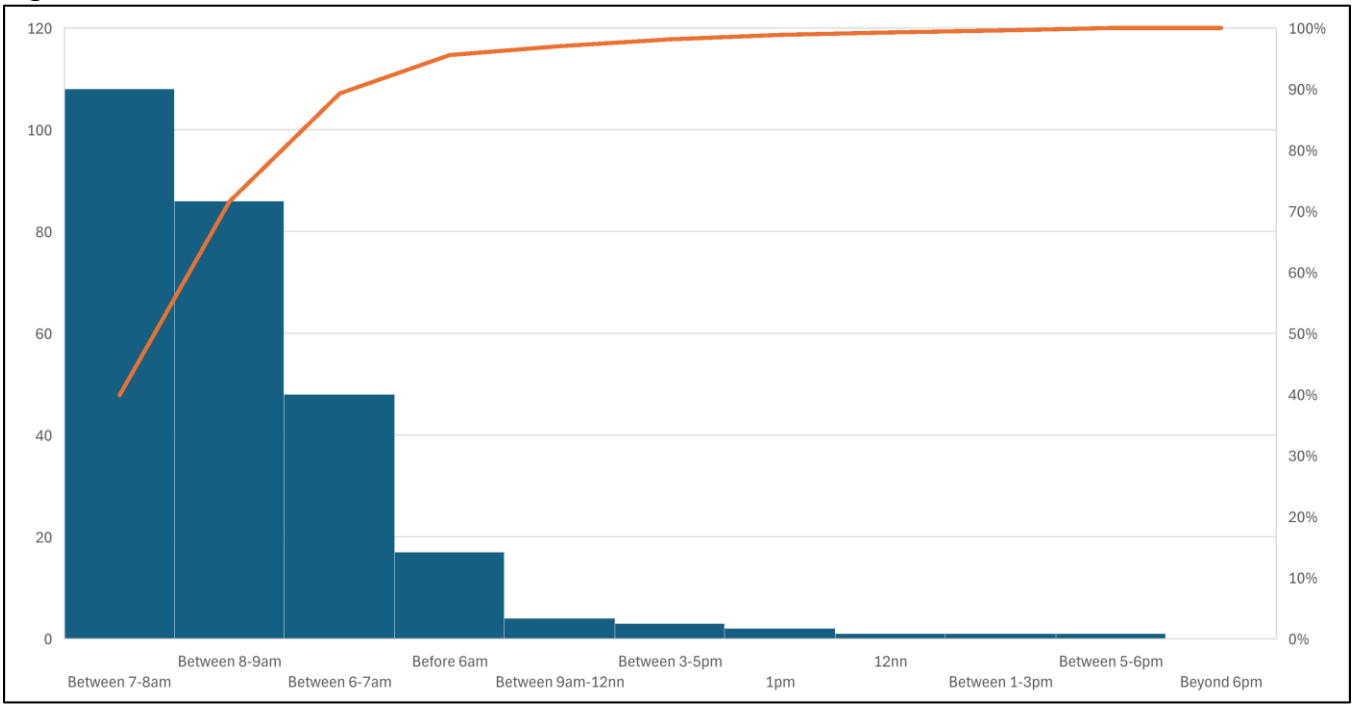
Note: The data presented are coded from the original responses.

Blank, "none," "no comment," and/or other non-related responses were not included.

4.4. Preferred Start of School

Figure 4 illustrates that learners mostly preferred to start school between 7 – 8 a.m. The second preference is between 8 – 9 a.m., followed with between 6 – 7 a.m. and then the other times or periods of the day which all have lower than 20% of the learners' preference.

Figure 4. *Preferred Time to Start School*



To check whether the preference on the start of school day is correlated with the perceived school day length and measure the strength of dependence, Spearman's rho and Kendall's tau-b were run, see results in Table 3.

Table 3. *Correlation between Preferred Start of School and Perceived School Day Length*

Correlation Table						
			Spearman		Kendall	
			rho	p	tau B	p
Preferred Start of School	-	Believes School Day is Too Long	0.047	0.444	0.036	0.494
Preferred Start of School	-	Believes School Day is Too Short	-0.323	< .001	-0.278	< .001
Preferred Start of School	-	Believes School Day is Practically Balanced	-0.243	< .001	-0.211	< .001

Table 3 indicates that there is no significant correlation (0.047) between the learners' preference on the time to start the school day and their perception that the school day is too long. Additionally, the learners' perception of the school day being too long has no significant dependence (0.036) on their preference for the start of school and vice versa.

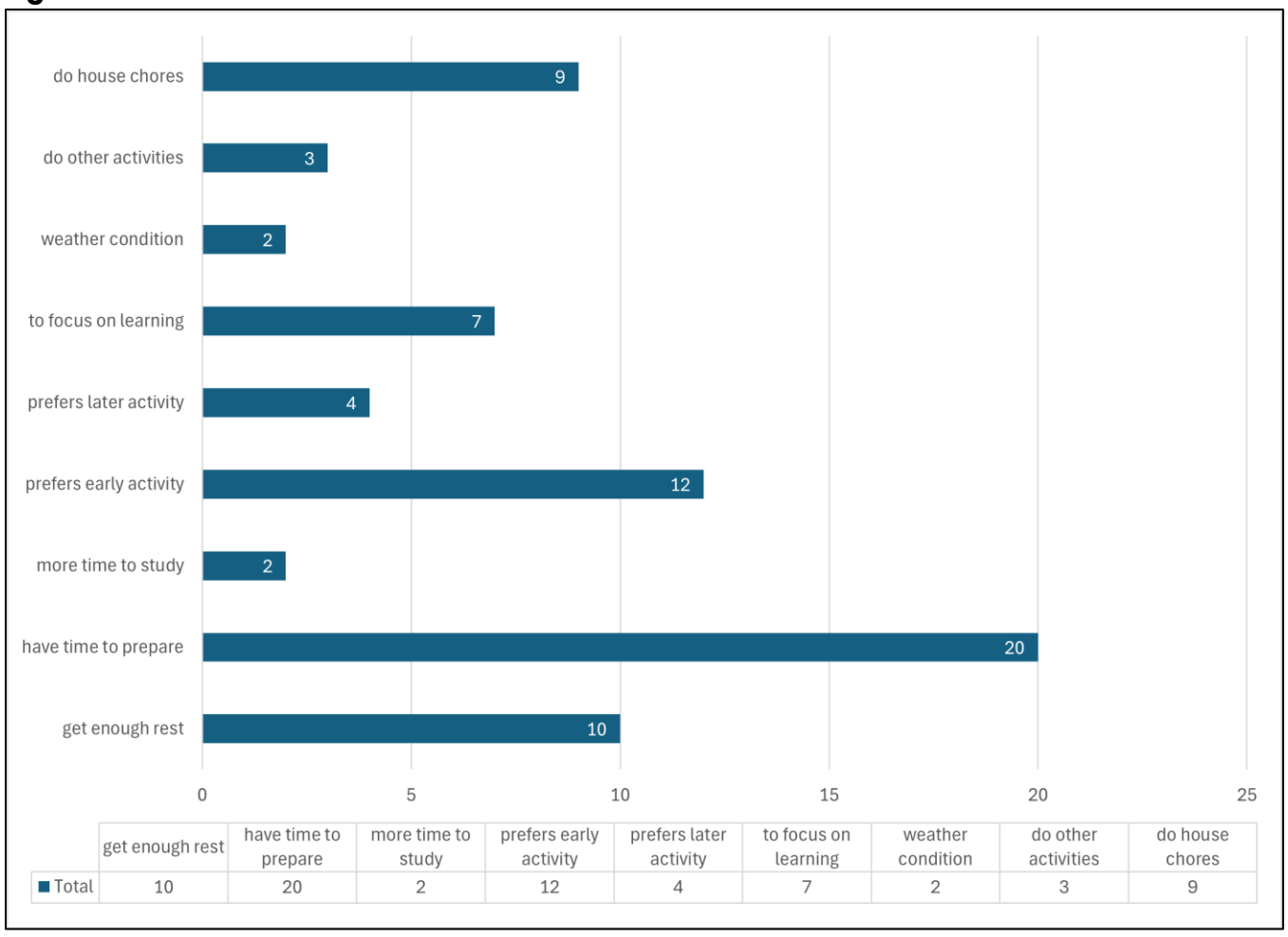
Conversely, the learners' preference is found to have negatively low (-0.323) but significant (< .001) correlation with the perception that school day is too short and found to have similar values on dependence (-278; < .001). However, despite having significant value (< .001) between preferred start of school and believing that school day is practically

balanced, the correlation (-0.243) between the two are considerably negligible, so as their dependence (-0.211).

4.5. Learner's Reason for Preferred Start of School

Based on the data obtained from the qualitative question, what was the reason for the student's preference on school day length, Figure 5 illustrates that students' most dominant reason for their preference on the time to start school is for them to have enough time to prepare before school (frequency = 20) which includes reviewing lessons, doing assignments, eating breakfast, having enough travel time, taking a bath, and other similar activities. Some learners prefer early activity (frequency = 12), some want enough sleep and well-rested (frequency = 10), some have to do household chores (frequency = 9), and some just want to have more focus on learning (frequency = 7). Furthermore, some learners just prefer later activity (frequency = 4), some want to do activities not related to academics and home (frequency = 3), some want to have more time to study outside school hours (frequency = 2), and some just because of the weather condition (frequency = 2) being later time of the day is hotter than early morning.

Figure 5. *Reasons for Preferred Time to Start School*



	get enough rest	have time to prepare	more time to study	prefers early activity	prefers later activity	to focus on learning	weather condition	do other activities	do house chores
Total	10	20	2	12	4	7	2	3	9

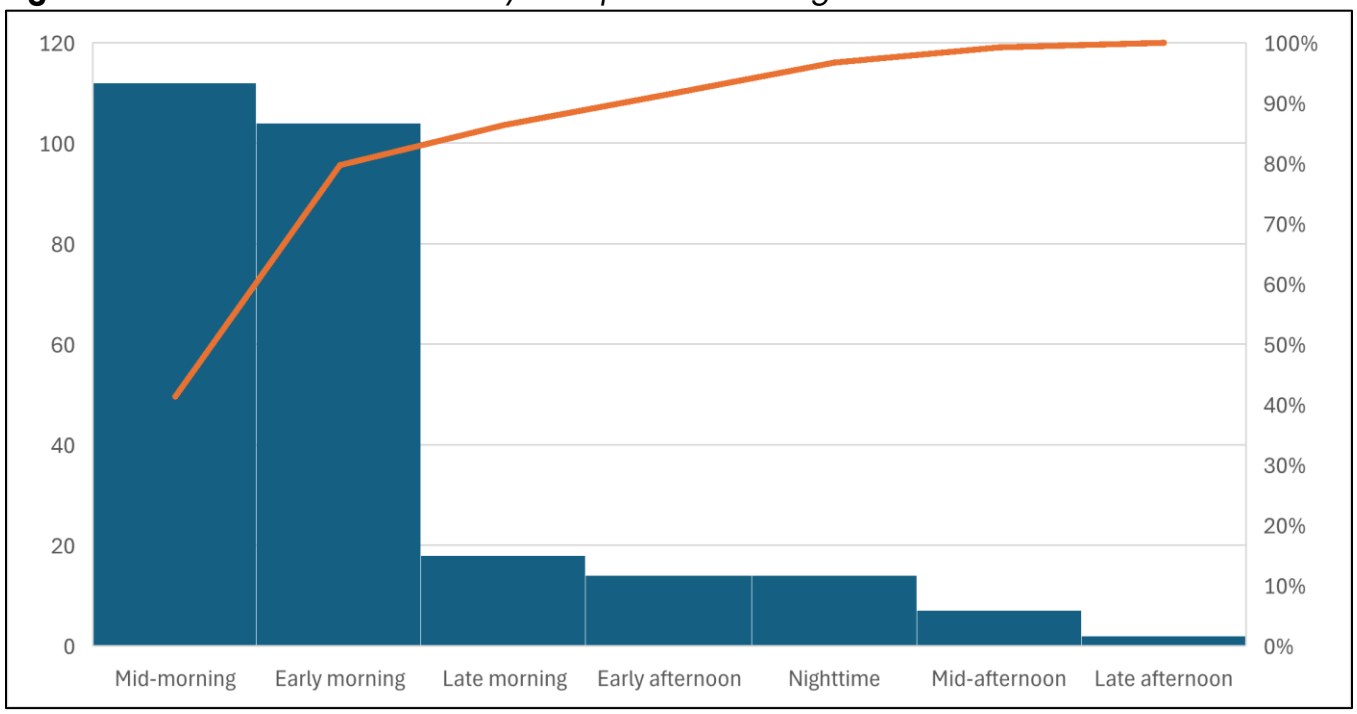
Note: The data presented are coded from the original responses.

Blank, "none," "no comment," and/or other non-related responses were not included.

4.6. Perceived Optimal Learning Time

Figure 6 illustrates that most of the learners believe that the optimal time for learning is in the mid-morning (within 08:30 until 10:30) and the early morning (within 05:00 until 08:30). Moreover, the other times or periods of the day were not likely favored by the learners themselves. Thus, late morning down to nighttime were all less likely selected at below 20%.

Figure 6. *Perceived Time of the Day for Optimal Learning*



Note: The categorization of time herein is based on the context of the learners, which is as follows:

Early morning = 05:00-08:30
Mid-morning = 08:30-10:30
Late morning = 10:30-12:00
Early afternoon = 13:00-14:30
Mid-afternoon = 14:30-16:00
Late afternoon = 16:00-18:00
Nighttime = beyond 18:00.

The correlation between the perceived optimal learning time and the perceived school day length was tested, with its results presented in Table 4. Whether the learners view the school as too long, too short or practically balanced, there is no significant correlation or dependence on any pairing to the learners' perceived optimal learning time.

Table 4. *Correlation between Perceived Optimal Learning Time and Perceived School Day Length*

Correlation Table						
			Spearman rho	p	Kendall tau B	p
Perceived Optimal Learning Time	-	Believes School Day is Too Long	0.010	0.875	0.007	0.889
Perceived Optimal Learning Time	-	Believes School Day is Too Short	-0.205	< .001	-0.176	< .001
Perceived Optimal Learning Time	-	Believes School Day is Practically Balanced	-0.070	0.254	-0.060	0.258

4.7. Summary of Results

The results of the study revealed several key insights into learners' perceptions and preferences regarding school day duration. A majority of the learners perceived the current school day to be excessively long and expressed a preference for a shorter academic schedule, specifically favoring a school day lasting between 5 to 6 hours.

The primary reasons cited by the learners for preferring a shorter school day included the desire for time to relax and rest, engage in non-academic tasks such as hobbies and household responsibilities, and allocate more time for self-directed study or additional learning. These motivations highlight the importance students place on balancing academic obligations with personal well-being and holistic development.

In terms of school start times, most learners indicated a preference for beginning classes between 7:00 and 8:00 a.m. This preference was mainly rooted in the need for adequate preparation before school, encompassing activities such as reviewing lessons, completing assignments, eating breakfast, commuting, and other morning routines.

Statistical analysis showed that learners' preferred school start time had a low but fairly significant negative correlation with the perception that the school day is too short, suggesting that as preferred start times get later, the likelihood of perceiving the school day as too short slightly decreases. However, both correlation and dependence values remained low.

Furthermore, the majority of learners identified mid-morning (08:30 to 10:30 a.m.) and early morning (05:00 to 08:30 a.m.) as the most optimal periods for learning. Interestingly, no significant correlation or dependence was found between learners' perceived optimal learning time and their perception of the overall length of the school day, indicating that preferences for effective learning periods may be influenced by factors other than the total hours spent in school.

5. Discussion, Conclusion, and Recommendations

5.1. Discussion

The results of this study revealed that majority of the learners perceived the current school day, typically lasting 7 to 9.5 hours, as excessively long. Most students expressed a preference for a shortened school day lasting between 5 to 6 hours. Their dominant reasons centered on the need for rest, time for non-academic pursuits, and opportunities for additional study outside structured instruction. This perception is aligned with the study of Dabbay and Largoza (2024), which concluded that K–12 students in the Philippines are overburdened by longer school days compared to their counterparts in other Southeast Asian nations, exceeding the durations recommended by international education bodies (Testu, 2008).

The preferred school start time among learners was between 7:00 and 8:00 a.m., primarily to allow adequate preparation before attending classes. Furthermore, the perceived optimal learning periods were identified as mid-morning (8:30–10:30 a.m.) and early morning (5:00–8:30 a.m.), consistent with existing research highlighting the importance of aligning school schedules with students' cognitive readiness and circadian rhythms (Lenard et al., 2020; Minges & Redeker, 2016; Sabaoui et al., 2022).

Despite these extended school hours, recent international assessments raise concerns about educational efficiency. According to the OECD (2024), Filipino 15-year-olds scored well below the OECD average in mathematics (355 vs. 472), reading (347 vs. 476), and science (356 vs. 485). Only 16% of students reached the minimum proficiency level in mathematics, and nearly 25% had repeated a grade level—more than double the OECD average. These statistics suggest that extended instructional time, when poorly structured or misaligned with students' needs, does not inherently translate into improved academic outcomes.

Furthermore, comparative data on educational practices and national wellbeing underscores the broader implications of school day duration. Finland, a global benchmark in education, maintains a typical school day length of five hours and reported a world happiness score of 7.74. In contrast, the Philippines—with significantly longer school days—reported a lower happiness score of 6.05 (World Population Review, 2024a; 2024b). This disparity may reflect the broader effects of excessive academic pressure on student well-being and life satisfaction.

5.2. Conclusion

This study confirms that most senior high school learners at Ozamiz City School of Arts and Trades find the current school day too long and would prefer a shorter duration, ideally lasting 5 to 6 hours. Their preferences stem not from academic disengagement but from a desire for a more balanced routine that includes rest, personal development, and self-directed learning. The lack of significant correlation between perceived optimal learning time and school day length further supports the argument that academic effectiveness hinges more on the quality and alignment of instruction than on the quantity of instructional hours.

5.3. Recommendations

Based on the findings and claims from the existing literature, it is recommended that educational policymakers and school administrators consider reevaluating the current school day structure. The majority of the learners in this study expressed that the school day is too long and preferred a daily schedule of 5 to 6 hours. This aligns with recommendations from international studies suggesting that excessively long school days may lead to decreased academic engagement and increased learner fatigue (Dabbay & Largoza, 2024; Testu, 2008). Schools may benefit from adopting a more learner-centered schedule that allows sufficient time for rest, extracurricular activities, and independent learning. Moreover, educational institutions may explore flexible or staggered starting times, as learners indicated a preference to begin classes between 7:00 and 8:00 a.m. to allow for adequate preparation time.

Given that longer school days in the Philippines have not translated into improved academic performance, as evidenced by the 2022 PISA results (OECD, 2024), it is advisable to maybe shift focus from extending school hours to enhancing the quality and efficiency of instruction within a shorter, optimized timeframe. Additional consultation with students and teachers should also be conducted regularly to evaluate the effectiveness of school scheduling practices and ensure they align with students' developmental, academic, and psychosocial needs.

5.4. Limitations and Areas of Further Research

This study was limited to senior high school students enrolled during the second semester of School Year 2024–2025 at Ozamiz City School of Arts and Trades. As such, findings may not be generalizable to all senior high school students in other regions or educational settings. The use of availability sampling may also introduce bias, as participation depended on respondents' willingness and accessibility.

Future research may expand to include students from other schools, grade levels, or regions to gain broader insights. Longitudinal studies exploring how perceptions of school day length affect academic performance and well-being over time are also recommended. Additionally, experimental or quasi-experimental designs could assess the impact of varying school day durations on specific learning outcomes.

Acknowledgements

The researchers would like to extend their heartfelt gratitude to all the senior high school students of the OCSAT who participated in this study. Their honest responses, insights, and cooperation were invaluable in completing this research. Sincere appreciation is also extended to the Senior High School Head Teacher, whose support and guidance throughout the research process greatly facilitated the smooth conduct of data collection. Most especially, the researchers wish to thank the School Head of OCSAT for granting the necessary permissions and providing a supportive environment that made this study

possible. Their collective contributions and commitment to education are deeply appreciated.

Conflict of Interest

The researchers declare that there is no conflict of interest regarding the conduct and publication of this study. No financial, personal, or institutional interests influenced the outcomes, interpretations, or reporting of the findings. This research was conducted solely for academic purposes and in pursuit of contributing to educational knowledge and practice.

References

1. Baliyan, S. P. & Khama, D. (2020). How Distance to School and Study Hours after School Influence Students' Performance in Mathematics and English: A Comparative Analysis. *Journal of Education and e-Learning Research, 7*(2), 209-217. https://doi.org/10.20448/journal.509.2020.72.209.217
2. Barrios Fernández, A. (2023). Instruction time and educational outcomes. *IZA World of Labor 2023*: 509. https://doi.org/10.15185/izawol.509
3. Cattaneo, M. A., Oggenfuss, C. & Wolter, S. C. (2017). The more, the better? The impact of instructional time on student performance. *Education Economics, 25*(5), 433–445. https://doi.org/10.1080/09645292.2017.1315055
4. Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications. https://study.sagepub.com/creswell3e
5. Dabbay, M. L. & Largoza, G. L. (2024). Are K to 12 Students in the Philippines Overworked — by Design?. *The Second Congressional Commission on Education (EDCOM II) Research Paper Series No. 006*. https://edcom2.gov.ph/media/2024/11/20241109-7_-DABBAY-et-al_Are-K-12-Students-Overworked.pdf
6. DeAngelis, P. (2014). The Influence of the Length of the School Day on Grade 11 NJ HSPA Scores. *Seton Hall University Dissertations and Theses (ETDs)*. https://scholarship.shu.edu/dissertations/1978
7. Ezeonu, C. T., Anyanwu, O. U., Anyansi, M. N. & Nnaji, T. N. (2017). Does Longer Instruction Time In School Improve Children's Performance? An Assessment of Perception of Parents and Teachers in Abakaliki South-Eastern Nigeria. *IOSR Journal of Research & Method in Education, 7*(2), 52-57. https://doi.org/10.9790/7388-0702015257
8. Garcia, S., Fernandez, C. & Weiss, C. (2013). Does Lengthening the School Day Reduce the Likelihood of Early School Dropout and Grade Repetition: Evidence from Colombia. *Documentos de Trabajo EGOB No. 4*. http://dx.doi.org/10.2139/ssrn.2926193
9. Gurung, G. R. (2022). Extended Learning Time and Students' Academic Performance. *International Journal of Science and Research, 11*(1), 1424-1432. https://doi.org/10.21275/SR22128154858

10. Hincapie, D. (2016). Do Longer School Days Improve Student Achievement? Evidence from Colombia. *IDB WORKING PAPER SERIES Nº IDB-WP-679*. http://dx.doi.org/10.18235/0000268
11. Huebener, M., Kuger, S., & Marcus, J. (2017). Increased instruction hours and the widening gap in student performance. *Labour Economics, 47*, 15–34. https://doi.org/10.1016/j.labeco.2017.04.007
12. Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112–133. https://doi.org/10.1177/1558689806298224
13. Lenard, M., Morrill, M. S., & Westall, J. (2020). High school start times and student achievement: Looking beyond test scores. *Economics of Education Review, 76*, 101975. https://doi.org/10.1016/j.econedurev.2020.101975
14. Liu, M. (2022). The Relationship between Students' Study Time and Academic Performance and its Practical Significance. *BCP Education & Psychology, 7*, 412-415. https://doi.org/10.54691/bcpep.v7i.2696
15. Minges, K. E., & Redeker, N. S. (2016). Delayed school start times and adolescent sleep: A systematic review of the experimental evidence. *Sleep medicine reviews, 28*, 86–95. https://doi.org/10.1016/j.smrv.2015.06.002
16. OECD. (2020). Learning time during and after school hours. *PISA 2018 Results (Volume V): Effective Policies, Successful Schools*. https://doi.org/10.1787/639ec0b7-en
17. OECD. (2024). Philippines Student Performance (PISA 2022). *Education GPS*. https://gpseducation.oecd.org/CountryProfile?primaryCountry=PHL&treshold=5&topic=PI
18. Plevier, M. M. (2016). The Influence of Length of School Day on Grade 4 and Grade 5 Language Arts and Mathematics Performance in the State of New Jersey. *Seton Hall University Dissertations and Theses (ETDs)*. https://scholarship.shu.edu/dissertations/2158
19. Sabaoui, I., Lotfi, S., & Talbi, M. (2022). Analytical study of the impact of age chronotype and time preferences on the academic performance of secondary school students from a modest social background. *Retos: nuevas tendencias en educación física, deporte y recreación, 46*, 631-640. https://doi.org/10.47197/retos.v46.91415
20. Sammarone, D. R. (2014). The Influence of the Length of the School Day on the Percentage of Proficient and Advanced Proficient Scores on the New Jersey Assessment of Skills and Knowledge for Grades 6, 7, and 8. *Seton Hall University Dissertations and Theses (ETDs)*. https://scholarship.shu.edu/dissertations/1995
21. Tashakkori, A., & Teddlie, C. (2010). *SAGE handbook of mixed methods in social & behavioral research* (2nd ed.). SAGE Publications. https://methods.sagepub.com/book/sage-handbook-of-mixed-methods-social-behavioral-research-2e
22. Testu, F. (2008). *Rythmes de Vie et Rythmes Scolaires: Aspects Chronobiologiques et Chronopsychologiques.* Elsevier Masson. http://livre21.com/LIVREF/F8/F008136.pdf

23. Walden University. (n.d.). *The Pros and Cons to Longer School Days*. https://www.waldenu.edu/online-doctoral-programs/doctor-of-education/resource/the-pros-and-cons-to-longer-school-days
24. World Population Review. (2024a). *Average School Day Length by Country 2024*. https://worldpopulationreview.com/country-rankings/average-school-day-length-by-country
25. World Population Review. (2024b). *Happiest Countries in the World 2024*. https://worldpopulationreview.com/country-rankings/happiest-countries-in-the-world
26. Wu, D. (2020). Disentangling the Effects of the School Year from the School Day: Evidence from the TIMSS Assessments. *Education Finance and Policy, 15*(1). 104-135. https://doi.org/10.1162/edfp_a_00265

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**
DOI: **10.5281/zenodo.16393255**

Matatag Curriculum Insights: A Mixed Methods Analysis of Filipino 7 Lesson Exemplars

Alma M. Bihag, Joel T. Aclao & Liezl Marie B. Dagondon
Northwestern Mindanao State College of Science and Technology, *Philippines*

Abstract

This study examined the instructional design quality and curriculum alignment of 32 officially published Filipino Grade 7 lesson exemplars developed under the Department of Education's Matatag Curriculum. Recognizing the vital role of structured teaching guides in delivering competency-based and culturally relevant instruction, the research addressed the limited evaluation of how these exemplars reflect intended curriculum principles, inclusivity, flexibility, and technology integration. Using an embedded mixed methods design, the study combined quantitative content analysis and qualitative thematic analysis to identify strengths and gaps. Quantitative results showed full recognition of core principles such as Relevance, Continuity, Balance, Integration, Learner-Centeredness, and Evaluation and Improvement, with key philosophical determinants like Essentialism, Progressivism, Cognitivism, and Constructivism strongly present. However, the principle of Flexibility appeared in only 12.5% of the exemplars, with limited inclusion of alternative curriculum models. The qualitative analysis revealed five main themes: strong emphasis on competency-based, learner-centered strategies; consistent contextualization using local cultural content; limited flexibility in lesson design; varying depth of inclusivity and differentiation; and basic but not transformative use of technology. Triangulation confirmed the high alignment with standards but highlighted the rigid structure and shallow digital components as areas needing improvement. The study concludes that while the Filipino 7 lesson exemplars under the Matatag Curriculum provide structured, relevant, and standards-based guidance, they would benefit from enhanced flexibility, explicit inclusive strategies, and deeper digital integration. These findings offer practical insights for curriculum developers, teacher educators, and policymakers committed to strengthening lesson planning and ensuring that learning materials remain responsive to the diverse needs of Filipino learners in an evolving educational landscape.

Keywords: Matatag Curriculum, Filipino 7, Grade 7 Filipino, Filipino 7 lesson exemplar, Matatag Curriculum lesson exemplar

Recommended Citation:

Bihag, A. M., Aclao, J. T., & Dagondon, L. M. B. (2025). Matatag Curriculum Insights: A Mixed Methods Analysis of Filipino 7 Lesson Exemplars. *Ennoia Advances in Social Science, Technology and Education, 01*(02). 23-37. https://doi.org/10.5281/zenodo.16393255

(Bihag et al., 2025)

Correspondence[†]

[†]*For correspondence regarding this article*:
ALMA M. BIHAG
Senior High School Teacher
Ozamiz City School of Arts and Trades
Maningcol, Ozamiz City, Philippines 7200
alma.bihag@deped.gov.ph

1. Introduction

High-quality curriculum design plays a critical role in ensuring that educational systems meet national goals, address evolving learner needs, and equip students with competencies relevant for lifelong learning (Ornstein & Hunkins, 2018; Glatthorn et al., 2019). In the Philippines, the Department of Education (DepEd) has continuously pursued curriculum reforms to respond to persistent learning gaps, socio-cultural contexts, and the demands of the 21st century (DepEd, 2023). One of its most recent initiatives, the Matatag Curriculum, aims to strengthen foundational skills, promote contextualized learning, and ensure that instructional materials are competency-based, inclusive, and culturally relevant (DepEd, 2023; 2024).

Central to the Matatag Curriculum are lesson exemplars—structured teaching guides designed to support teachers in delivering lessons that align with national standards while encouraging innovative pedagogy (Tomlinson, 2017). For Filipino 7, these exemplars are intended not only to develop students' language proficiency and critical thinking but also to foster appreciation of Filipino culture and identity (Banks, 2019). Despite their importance, there remains limited empirical research evaluating how well these exemplars translate curriculum principles into actual classroom practice, particularly regarding instructional design, inclusivity, and cultural responsiveness.

Previous research underscores that well-designed instructional materials are pivotal to student engagement, comprehension, and knowledge retention (Merrill, 2020; Biggs & Tang, 2011). Merrill's (2020) "first principles of instruction" emphasize that effective materials must facilitate active problem-solving, real-world application, and scaffolded learning. However, analyses of newly introduced lesson exemplars under revised curricula, such as Matatag, are sparse—leaving questions about their strengths, gaps, and alignment with contemporary pedagogical standards.

Evaluating these lesson exemplars is thus crucial for several reasons. First, it allows stakeholders to verify whether the materials meet the intended learning competencies and standards outlined by DepEd (2023; 2024). Second, it sheds light on the embedded teaching strategies, which influence how teachers manage lessons, facilitate interaction, and assess learning outcomes (Wiliam, 2018). Third, understanding the cultural relevance and inclusivity of exemplars is especially vital for Filipino language instruction, which is inherently tied to national identity, local contexts, and socio-cultural diversity (Banks, 2019; Drake & Reid, 2020).

To address these gaps, this study adopts an embedded mixed methods design (Creswell & Plano Clark, 2018), integrating quantitative content analysis and qualitative thematic analysis to examine 32 officially published Filipino 7 lesson exemplars. Specifically, this research investigates how these exemplars align with core principles of instructional design—competency-based learning, inclusivity, contextualization, and integration of technology (UNESCO, 2021). By combining systematic documentary analysis with insights from teacher feedback, the study aims to provide evidence-based recommendations for improving lesson planning, teacher capacity, and student learning experiences within the Matatag Curriculum framework.

2. Methods

2.1. Research Design and Setting

This study employed an embedded mixed methods design, integrating both quantitative content analysis and qualitative thematic analysis to evaluate the instructional design and key features of Filipino 7 lesson exemplars in the Matatag Curriculum. According to Creswell and Plano Clark (2018), a mixed methods approach allows researchers to combine the strengths of numerical analysis with the depth of qualitative insights, resulting in a more comprehensive understanding of complex educational phenomena. The primary method was structured documentary analysis, guided by systematic coding procedures for quantitative data and thematic coding for qualitative interpretation (Bowen, 2009; Krippendorff, 2019).

The study was conducted at a public higher education institution in Mindanao, Philippines, which provides professional preparation and training for both pre-service and in-service teachers. This setting was selected because it actively supports curriculum research and capacity-building initiatives that align with the Department of Education's ongoing efforts to implement and refine the Matatag Curriculum (DepEd, 2023).

The primary data for this study consisted of 32 officially published Filipino Grade 7 lesson exemplars developed under the Matatag Curriculum. These exemplars were obtained from verified Department of Education repositories and official circulars (DepEd, 2024) and serve as structured teaching guides that outline the learning competencies, instructional activities, assessment tools, and contextualization strategies needed to support competency-based instruction in the Filipino language subject.

To guide the systematic analysis, two researcher-developed tools were utilized. The Curriculum Approaches Assessment Tool (CAAT), adapted from Tyler's (1949) curriculum evaluation model and informed by later curriculum development frameworks (Ornstein & Hunkins, 2018), was designed to examine how the exemplars reflected key curriculum principles, determinants, design approaches, and alignment with curriculum models. The Matatag Curriculum Instructional Design Evaluation Scale (MCIDES), grounded in Biggs and Tang's (2011) constructive alignment theory and Merrill's (2020) first principles of instruction, assessed the degree to which the lesson exemplars incorporated essential instructional design features such as competency-based learning, inclusivity, authentic learning experiences, balanced assessment, contextualization, and technology integration. Both tools combined structured coding rubrics for quantitative scoring with open-ended criteria for qualitative notes, allowing for a comprehensive evaluation of thematic patterns, strengths, and areas for improvement in the instructional design.

2.2. Data Collection and Analysis

Data collection and analysis followed a carefully structured embedded mixed methods design, ensuring that both quantitative and qualitative insights were systematically gathered and integrated. The data collection process began with a comprehensive retrieval of the 32 Filipino Grade 7 lesson exemplars from official Department of Education repositories, circulars, and publicly accessible curriculum resources (DepEd, 2024). Only officially

authorized exemplars were included to ensure the credibility and relevance of the instructional materials under review.

Each exemplar was first read in full to establish familiarity with its structure, content, and pedagogical components. Using the Curriculum Approaches Assessment Tool (CAAT) and the Matatag Curriculum Instructional Design Evaluation Scale (MCIDES), the researcher systematically coded each exemplar for the presence of curriculum construction principles, determinants, design approaches, and model alignment, as well as for specific instructional design elements such as competency-based learning, inclusivity, contextualization, and the integration of assessment and technology.

The embedded mixed methods design involved three interlinked stages:

In the first stage, quantitative content analysis was carried out by applying the CAAT and MCIDES rubrics to each exemplar. This stage produced numerical data capturing the frequency and prevalence of curriculum principles, instructional features, and alignment indicators across all exemplars. Frequency counts and descriptive statistics, including means and percentage distributions, were computed to reveal patterns in how curriculum elements were embedded in the materials. This step followed established content analysis procedures recommended by Neuendorf (2017).

In the second stage, qualitative thematic analysis was performed to gain deeper insight into the instructional strengths and limitations that might not be apparent from numerical counts alone. Following Braun and Clarke's (2006) six-phase framework for thematic analysis, the researcher generated initial codes by highlighting significant phrases and sections in the exemplars, organized these codes into broader themes, reviewed and refined the themes for consistency, and interpreted how these themes reflected the effectiveness and potential gaps in the lesson design. This stage allowed the study to capture nuanced elements such as cultural relevance, authenticity of learning tasks, and inclusivity strategies embedded in the lesson plans.

In the third stage, the results of the quantitative and qualitative analyses were systematically compared and integrated to provide a holistic understanding of the lesson exemplars' alignment with the Matatag Curriculum's aims and instructional design principles. This triangulation stage helped confirm areas of strong alignment while also highlighting discrepancies or overlooked features that could inform recommendations for improvement. The integration of numeric trends and textual insights strengthened the validity and depth of the findings, as recommended for embedded mixed methods research (Creswell & Plano Clark, 2018).

Throughout the process, the study maintained strict ethical standards. Only publicly accessible, officially released lesson exemplars were examined, ensuring compliance with institutional and national research guidelines. All materials were analyzed objectively, without alteration or manipulation of their content. To uphold academic integrity, all sources were properly cited in accordance with APA guidelines, and all interpretations and conclusions were the sole responsibility of the researcher. Confidentiality was not a concern since no personal or sensitive data were involved. The systematic documentation of the coding, analysis, and synthesis process ensured transparency and trustworthiness, in line

with recommendations for rigorous qualitative and mixed methods research (Punch & Oancea, 2014).

2.3. Intercoder Reliability

Thematic analysis was conducted by the lead researcher using the MCIDES framework as a guide. While intercoder reliability was not calculated due to the single-coder design, efforts to enhance trustworthiness were implemented. Specifically, the initial codes and categories were reviewed in consultation with two external curriculum experts to validate consistency and interpretation. This peer-review process helped ensure analytical rigor and minimize potential bias. As only one researcher performed the coding, intercoder reliability was not established; however, expert validation was used to strengthen the credibility of findings.

3. Results

This section presents the findings of the embedded mixed methods analysis conducted on the 32 Filipino Grade 7 lesson exemplars developed under the Matatag Curriculum. The results are organized into two parts: the quantitative content analysis, which summarizes the frequency and distribution of curriculum principles, determinants, design approaches, and models across the exemplars, and the qualitative thematic analysis, which explores patterns, strengths, and areas for improvement emerging from a deeper textual examination of the instructional content. Together, these findings provide empirical evidence of how well the lesson exemplars align with the intended instructional design principles and curriculum standards set by the Department of Education.

3.1. Quantitative Content Analysis

The quantitative content analysis examined the prevalence of key curriculum principles, determinants, design frameworks, and curriculum models embedded in the 32 Filipino 7 lesson exemplars under the Matatag Curriculum. The analysis focused on how frequently each element appeared, highlighting the degree of alignment between the exemplars and established curriculum construction standards.

3.1.1. Curriculum Construction Principles

As shown in Table 1, the analysis revealed full recognition (100%) of several core curriculum principles. All 32 lesson exemplars demonstrated clear alignment with the principles of Relevance, Continuity, Balance, Integration, Learner-Centeredness, and Evaluation and Improvement. This suggests that the exemplars were consistently designed to connect learning to real-life contexts, maintain logical sequencing, distribute content equitably, integrate various learning areas, center on student needs, and incorporate feedback and improvement mechanisms.

However, the principle of Flexibility was identified in only 4 out of 32 exemplars (12.5%), indicating limited adaptability in modifying learning activities or materials to respond to diverse learning needs or contextual changes.

Table 1. *Frequency and Percentage Distribution of Key Features in Filipino 7 Lesson Exemplars*

Criteria	Frequency	Percentage (%)
Principles of Curriculum Construction		
Relevance	32	100%
Continuity	32	100%
Balance	32	100%
Flexibility	4	12.5%
Integration	32	100%
Learner-Centeredness	32	100%
Evaluation and Improvement	32	100%
Curriculum Determinants		
Perennialism	5	15.6%
Essentialism	32	100%
Progressivism	32	100%
Reconstructionism	32	100%
Behaviorism	3	9.4%
Cognitivism	32	100%
Constructivism	32	100%
Sociocultural Determinants	32	100%
Economic Determinants	32	100%
Political-Legal Determinants	32	100%
Technological Determinants	30	93.8%
Environmental & Global Determinants	30	93.8%
Curriculum Design		
Subject-Centered Curriculum	32	100%
Learner-Centered Curriculum	32	100%
Problem-Centered Curriculum	32	100%
Integrated Curriculum	32	100%
Curriculum Models		
Tyler's Model	32	100%
Saylor & Alexander Model	32	100%
Taba's Model	3	9.4%
Stufflebeam's CIPP Model	2	6.3%
Rogers' Model	2	6.3%
Kohl & Holt's Model	1	3.1%

Note: N = 32 – number of lesson exemplars evaluated in this study

3.1.2. Curriculum Determinants

In terms of curriculum determinants, the data showed universal acknowledgment of Essentialism, Progressivism, and Reconstructionism (100%), confirming that the lesson exemplars strongly emphasize foundational knowledge, student-centered approaches, and responsiveness to societal changes.

Cognitivism and Constructivism were also fully integrated (100%), reflecting a consistent focus on active learning and knowledge construction. By contrast, Behaviorism appeared in only 3 exemplars (9.4%), indicating a lesser emphasis on reinforcement-based instructional strategies. The philosophical determinant of Perennialism was recognized in 5 exemplars (15.6%), highlighting a minimal focus on timeless knowledge frameworks compared to contemporary approaches.

Environmental and technological factors were well represented, with Technological and Environmental & Global Determinants each appearing in 30 exemplars (93.8%). This suggests a strong but not universal integration of digital tools and sustainability awareness.

3.1.3. Curriculum Design

Regarding curriculum design, all lesson exemplars consistently integrated multiple design frameworks. Subject-Centered, Learner-Centered, Problem-Centered, and Integrated Curriculum Designs were each present in 100% of the exemplars, indicating that the materials combine structured content mastery with active, relevant, and interdisciplinary learning experiences.

3.1.4. Curriculum Models

Analysis of curriculum models showed that Tyler's Model and the Saylor & Alexander Model were fully represented (100%), confirming their dominance as structural frameworks for lesson development. However, other models were less frequently evident. Taba's Model appeared in 3 exemplars (9.4%), Stufflebeam's CIPP Model in 2 (6.3%), and Rogers' Model and Kohl & Holt's Model each in only 1 or 2 exemplars (3.1%–6.3%), indicating limited incorporation of alternative or more flexible, teacher-driven, or student-centered planning approaches.

3.2. Qualitative Thematic Analysis

The qualitative thematic analysis complemented the quantitative results by providing deeper insights into the instructional design patterns, strengths, and areas for improvement embedded within the Filipino Grade 7 lesson exemplars. Through systematic coding and theme development, five core themes emerged, reflecting how the exemplars operationalize the principles of the Matatag Curriculum in practice.

3.2.1. Strong Emphasis on Competency-Based and Learner-Centered Instruction

A recurring theme across the exemplars is their clear alignment with competency-based frameworks and learner-centered strategies. Many exemplars present well-defined learning outcomes, scaffolded activities, and varied tasks that encourage student participation and active construction of knowledge. This pattern suggests that the lesson

designs are structured to promote mastery learning, as well as to accommodate different learning styles and paces, which reinforces the quantitative finding that principles such as Relevance, Continuity, and Learner-Centeredness are strongly embedded.

3.2.2. Consistent Integration of Contextualization and Cultural Relevance

The analysis revealed that the lesson exemplars frequently incorporate local contexts, cultural references, and examples that connect learning content to students' everyday lives. Folktales, local proverbs, and culturally significant texts are commonly used to illustrate Filipino language concepts and values. This contextualization supports authentic learning experiences and strengthens cultural identity, echoing the high recognition of sociocultural determinants seen in the quantitative results.

3.2.3. Limited Flexibility in Instructional Design

Despite the overall strengths in structure and cultural integration, a clear gap emerged regarding flexibility. Most exemplars follow rigid, prescriptive steps and standardized activities, offering few options for teachers to adapt tasks to students' diverse needs or local classroom situations. This limitation supports the quantitative finding that Flexibility appeared in only a small fraction of the exemplars, suggesting a need for more adaptable lesson structures and alternative pathways for differentiated instruction.

3.2.4. Varied Depth of Inclusivity and Differentiation

While many exemplars include group work, peer interaction, and simple differentiation strategies, explicit attention to inclusive education practices—such as gender sensitivity, learning accommodations, or tasks for students with varying abilities—is often implied rather than detailed. This points to an opportunity to strengthen inclusive pedagogy in lesson design, ensuring that all learners can access and engage with content meaningfully.

3.2.5. Emerging Use but Limited Depth of Technology Integration

Thematic analysis also highlighted that technology is incorporated mainly as a supporting tool for research or presentation tasks but is seldom integrated as an interactive or transformative element of instruction. This finding aligns with the quantitative result showing slightly lower ratings for Technological Determinants compared to other areas. Teachers may benefit from clearer guidance on how to embed digital tools, blended learning strategies, or media literacy tasks to enhance student engagement and prepare learners for technology-driven contexts.

3.3. Triangulation of Quantitative and Qualitative Findings

The final stage of the embedded mixed methods analysis compared and integrated the quantitative content patterns with the qualitative thematic insights to generate a more comprehensive understanding of the strengths and areas for improvement within the lesson exemplars.

The triangulation confirmed that the high frequencies found for principles such as Relevance, Continuity, Balance, Integration, and Learner-Centeredness in the quantitative analysis were supported by qualitative evidence of well-structured learning outcomes, scaffolded tasks, and active learner participation. The thematic emphasis on cultural contextualization and authentic learning experiences also reinforced the strong presence of sociocultural determinants identified in the quantitative data.

However, the triangulated findings also highlighted consistent gaps. While quantitative results showed very low frequencies for Flexibility (12.5%) and limited recognition of alternative curriculum models, the qualitative themes explained this pattern by revealing the prescriptive, standardized nature of many exemplars, which offer few options for adaptation. Similarly, although Technological Determinants appeared in 93.8% of the exemplars, qualitative analysis showed that technology use was mostly superficial and teacher-directed, with limited opportunities for students to engage with digital tools in transformative ways.

3.4. Summary of Results

The embedded mixed methods analysis of 32 Filipino Grade 7 lesson exemplars under the Matatag Curriculum revealed that the materials strongly align with key curriculum construction principles and modern instructional design standards. The quantitative content analysis showed full recognition of core principles such as Relevance, Continuity, Balance, Integration, Learner-Centeredness, and Evaluation and Improvement, with Essentialism, Progressivism, Reconstructionism, Cognitivism, and Constructivism also consistently embedded as curriculum determinants. Subject-centered, learner-centered, problem-centered, and integrated curriculum designs were fully represented across all exemplars, indicating a balanced approach to lesson planning. However, the low frequency for Flexibility (12.5%) and limited evidence of alternative curriculum models suggested that while the lessons are well-structured, they may be overly prescriptive and less adaptable to diverse classroom contexts.

The qualitative thematic analysis supported and expanded these patterns, highlighting five key themes: strong emphasis on competency-based, learner-centered instruction; consistent contextualization through culturally relevant content; limited flexibility in instructional design; varying levels of inclusivity and differentiation; and basic but not transformative integration of technology.

The triangulation stage confirmed that the high quantitative ratings for core curriculum principles were reflected in actual lesson structures and learning tasks, while also explaining the low scores for flexibility and certain models through qualitative evidence of rigid, standardized lesson formats. It also revealed that although technological components were frequently included, their practical classroom use was often shallow and did not fully leverage the potential of digital tools for student engagement and independent learning.

4. Discussion

The findings of this study provide a comprehensive understanding of how the Filipino Grade 7 lesson exemplars under the Matatag Curriculum align with intended curriculum principles and instructional design standards. The quantitative content analysis demonstrated that the lesson exemplars strongly adhere to core principles of curriculum construction—such as Relevance, Continuity, Balance, Integration, Learner-Centeredness, and Evaluation and Improvement—showing 100% presence across all 32 documents. The prevalence of key curriculum determinants, including Essentialism, Progressivism, Reconstructionism, Cognitivism, and Constructivism, further indicates that the exemplars are firmly grounded in modern, student-centered, and competency-based educational philosophies (Biggs & Tang, 2011; Glatthorn et al., 2019). However, the low frequency for Flexibility (12.5%) and minimal recognition of alternative curriculum models suggest that while the exemplars are robust and coherent, they remain largely prescriptive and structured with limited room for teacher adaptation.

The qualitative thematic analysis reinforced these quantitative patterns while adding nuanced insight. The themes revealed that the exemplars operationalize clear learning outcomes, scaffolded tasks, and contextualized cultural content that anchor lessons in learners' lived experiences—confirming the strong alignment with sociocultural determinants (Banks, 2019). However, qualitative coding highlighted that explicit strategies for inclusivity and differentiation are not consistently or deeply embedded. Likewise, while technology is present in the form of suggested research tasks or media use, it is rarely integrated as an interactive or transformative element that could deepen digital literacy or blended learning opportunities (Mishra & Koehler, 2006; UNESCO, 2021).

The triangulation stage combined these strands of evidence, affirming that the high alignment with foundational curriculum standards and competencies translates into practice through structured, culturally relevant, and well-scaffolded lesson plans. Yet, it also clarified that the same strong structure can constrain teacher agency. The rigid, step-by-step nature of the exemplars leaves limited space for localized adjustments, creative pedagogical variations, or flexible pacing—elements that Tomlinson (2017) and Wiliam (2018) emphasize as critical for addressing diverse learning profiles and promoting differentiated instruction. The triangulated results thus show that the Matatag exemplars are strong frameworks but may benefit from built-in options for flexible adaptation and learner-driven tasks.

Taken together, these findings suggest that the Matatag Curriculum's lesson exemplars are succeeding in providing teachers with clear, standards-aligned, and culturally anchored resources to deliver competency-based instruction in Filipino 7. They reflect the Department of Education's commitment to bridging learning gaps through structured, relevant, and meaningful content (DepEd, 2023). However, to fully realize the curriculum's vision of inclusive, adaptive, and future-ready education, enhancements are needed in three key areas: flexibility, explicit inclusivity, and technology integration.

4.1. Implications and Recommendations

The results of this study have clear implications for curriculum designers, teacher educators, and policymakers. First, curriculum developers should embed greater flexibility in exemplar templates by providing optional enrichment and remedial tasks, suggestions for alternative activities, and guidance for adjusting lessons to different learning contexts without compromising core standards. Doing so will operationalize the principle of Flexibility more fully and empower teachers to adapt lesson delivery according to learner needs (Ornstein & Hunkins, 2018).

Second, it is recommended that future versions of lesson exemplars include clear, explicit strategies for inclusivity. This can be achieved by adding specific differentiation techniques for mixed-ability groups, integrating gender-sensitive language and perspectives, and highlighting diverse cultural and community voices where relevant (Banks, 2019). Concrete examples of modifications for learners with varying abilities or backgrounds can further support teachers in creating equitable learning experiences.

Third, to respond to the increasing need for digital competence, developers should expand the depth of technology integration within exemplars. Beyond basic tasks like research or slideshows, exemplars should suggest how to leverage digital tools for collaboration, formative assessment, and student-created multimedia products, aligning with current frameworks for 21st century skills and blended learning (Mishra & Koehler, 2006; UNESCO, 2021).

Finally, it is recommended that schools and teacher education institutions provide ongoing professional development to help teachers interpret, adapt, and implement exemplars more effectively. Training should focus on strategies for customizing lessons, integrating inclusive practices, and innovatively using technology to enhance engagement and learning outcomes.

4.2. Limitations and Areas for Future Research

As this study relied solely on documentary analysis of lesson exemplars, the findings reflect the intended design of instruction rather than its actual implementation in classrooms. This limits the generalizability of the results, as factors such as teacher interpretation, student response, and contextual dynamics were not observed. Thus, while the study offers insights into the structural and pedagogical alignment of the exemplars, caution should be exercised in extending these findings to classroom practices without triangulation from field-based data.

While this study provides valuable insights, it is limited to document analysis and does not include classroom implementation data. Future research should explore how teachers actually use and adapt these exemplars in diverse classroom contexts, as well as how students experience the lessons in practice. Classroom-based studies, teacher interviews, and student focus groups could provide richer evidence on how the intended design translates into everyday teaching and learning.

4.3. Conclusion

Quantitative results indicate that while the lesson exemplars strongly reflect core principles of curriculum design and competency-based frameworks, there is limited evidence of flexibility and alternative or more participatory curriculum models, which may restrict adaptability and innovation in lesson delivery.

Moreover, qualitative findings reinforce the strengths identified in the quantitative analysis—particularly the strong alignment with core curriculum principles and competency-based learning—while also highlighting consistent areas for refinement, such as increasing instructional flexibility, deepening inclusive strategies, and enhancing digital integration. These themes provide actionable insights for curriculum developers, school leaders, and teachers aiming to continuously improve the relevance and effectiveness of lesson exemplars within the Matatag Curriculum.

Altogether, the Filipino Grade 7 lesson exemplars under the Matatag Curriculum demonstrate strong alignment with national curriculum goals and modern pedagogical principles, supporting well-structured, competency-based, and culturally contextualized instruction. To ensure these materials remain responsive and transformative, it is essential to strengthen their flexibility, inclusivity, and technology integration. Doing so will help sustain the curriculum's promise of delivering relevant, equitable, and future-ready education for all Filipino learners.

Acknowledgment

The authors gratefully acknowledge the Northwestern Mindanao State College of Science and Technology (NMSCST) for providing an enabling environment and institutional support in conducting this research. Sincere thanks are also extended to the Department of Education for access to official lesson exemplars, and to colleagues and mentors who offered valuable insights and constructive feedback during the preparation of this manuscript.

Declaration of AI Use

The authors affirm that generative artificial intelligence (AI) tools were used solely as support for drafting, organizing, and language refinement of this manuscript. All research design, data collection, analysis, interpretation of findings, and final conclusions were conducted and validated by the authors. The AI tools did not generate any original research content or analysis beyond editorial assistance. The authors take full responsibility for the integrity, accuracy, and originality of the work.

Declaration of Conflict of Interest

The authors declare that there are no conflicts of interest related to the conduct of this research, the writing of this manuscript, or its publication.

References

1. Banks, J. A. (2019). *An introduction to multicultural education* (6th ed.). Pearson. https://www.pearsonhighered.com/assets/preface/0/1/3/4/0134802403.pdf
2. Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). Open University Press / McGraw-Hill Education. https://cetl.ppu.edu/sites/default/files/publications/-John_Biggs_and_Catherine_Tang-_Teaching_for_Quali-BookFiorg-.pdf
3. Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27–40. https://doi.org/10.3316/QRJ0902027
4. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa
5. Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications. https://bayanbox.ir/view/236051966444369258/9781483344379-Designing-and-Conducting-Mixed-Methods-Research-3e.pdf
6. Department of Education. (2023). *Policy guidelines on the implementation of the Matatag Curriculum*. Department of Education, Republic of the Philippines. https://www.deped.gov.ph/wp-content/uploads/DO_s2024_010.pdf
7. Department of Education. (2024). *DM No. 352, s. 2024: Lesson exemplars and worksheets for the Matatag Curriculum*. Department of Education, Republic of the Philippines. https://bukidnon.deped.gov.ph/download/dm-no-352-s-2024-lesson-exemplars-and-worksheets-for-the-matatag-curriculum-implementation/#
8. Drake, S. M., & Reid, J. L. (2020). 21st Century Competencies in Light of the History of Integrated Curriculum. *Frontiers in Education, 5*, 521084. https://doi.org/10.3389/feduc.2020.00122
9. Glatthorn, A. A., Boschee, F., Whitehead, B. M., & Boschee, B. F. (2019). *Curriculum leadership: Strategies for development and implementation* (5th ed.). SAGE Publications. https://study.sagepub.com/glatthorn4e
10. Krippendorff, K. (2019). *Content analysis: An introduction to its methodology* (4th ed.). SAGE Publications. https://doi.org/10.4135/9781071878781
11. Merrill, M. D. (2020). *First principles of instruction: Identifying and designing effective, efficient, and engaging instruction* (2nd ed.). Routledge. https://digitalcommons.usu.edu/usufaculty_monographs/100/
12. Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record, 108*(6), 1017-1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

13. Neuendorf, K. A. (2017). *The content analysis guidebook* (2nd ed.). SAGE Publications. https://methods.sagepub.com/book/mono/the-content-analysis-guidebook-2e/toc
14. Ornstein, A. C., & Hunkins, F. P. (2018). *Curriculum: Foundations, principles, and issues* (7th ed.). Pearson. https://daneshnamehicsa.ir/userfiles/file/manabeh/francis_p_hunkins_allan_c_ornstein.pdf
15. Punch, K. F., & Oancea, A. (2014). *Introduction to research methods in education* (2nd ed.). SAGE Publications. https://uk.sagepub.com/en-gb/eur/introduction-to-research-methods-in-education/book239756#preview
16. Tomlinson, C. A. (2017). *How to differentiate instruction in academically diverse classrooms* (3rd ed.). ASCD. https://files.ascd.org/staticfiles/ascd/pdf/siteASCD/publications/books/HowtoDifferentiateInstructioninAcademicallyDiverseClassrooms-3rdEd.pdf
17. Tyler, R. W. (1949). *Basic principles of curriculum and instruction*. University of Chicago Press. https://blogs.ubc.ca/ewayne/files/2009/02/tyler_001.pdf
18. UNESCO. (2021). *Reimagining our futures together: A new social contract for education*. UNESCO Publishing. https://doi.org/10.54675/ASRB4722
19. Wiliam, D. (2018). *Embedded formative assessment* (2nd ed.). Solution Tree Press. https://cloudfront-s3.solutiontree.com/pdfs/Reproducibles_EFA/The-Main-Idea-Embedded-Formative-Assessment-March-2013.pdf

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**
DOI: **10.5281/zenodo.16394502**

Evaluation of Grade 7 Mathematics Lesson Exemplars in the Matatag Curriculum of DepEd

Luz Glenn P. Militante, Joel T. Aclao & Liezl Marie B. Dagondon
Northwestern Mindanao State College of Science and Technology, *Philippines*

Abstract

This study evaluated the key features and instructional design of Grade 7 Mathematics lesson exemplars developed under the Philippine Department of Education's Matatag Curriculum. Using an embedded mixed methods documentary analysis, the research examined how well these exemplars align with core curriculum construction principles, curriculum determinants, and modern instructional design expectations. Thirty-two official lesson exemplars were systematically analyzed through quantitative content analysis and qualitative thematic coding. Results indicated that the exemplars demonstrate strong alignment with foundational principles such as relevance, continuity, balance, and learner-centeredness, with over 90% alignment in several core areas. The materials clearly specify learning competencies, provide structured learning sequences, and support differentiated and collaborative learning strategies. However, findings also revealed notable gaps. Less than half of the exemplars meaningfully integrate technology-enhanced tasks, and only about one-third embed sustainability, environmental, or global contexts, limiting real-world application and interdisciplinary connections. Thematic analysis confirmed these gaps, showing that while the lessons emphasize competency-based approaches, they often lack specific guidance for integrating digital tools, sustainability issues, or connections to other subject areas. The study concludes that while the lesson exemplars offer a sound foundation for achieving curriculum standards, deliberate improvements are needed to ensure they meet 21st century learning demands. Practical recommendations include embedding clearer ICT activities, contextualizing content with sustainability themes, and fostering interdisciplinary tasks to enrich students' problem-solving and global awareness. The findings provide valuable insights for curriculum planners, teachers, and policymakers working to strengthen the quality, relevance, and future-readiness of lesson exemplars within the Philippine basic education system.

Keywords: DepEd Matatag Curriculum, Grade 7 Mathematics, Matatag Curriculum, Mathematics 7, Matatag Curriculum lesson exemplar

Recommended Citation:

Militante, L. G. P., Aclao, J. T., & Dagondon, L. M. B. (2025). Evaluation of Grade 7 Mathematics Lesson Exemplars in the Matatag Curriculum of DepEd. *Ennoia Advances in Social Science, Technology and Education, 01*(02). 38-52. https://doi.org/10.5281/zenodo.16394502

(Militante et al., 2025)

Correspondence‡

‡*For correspondence regarding this article*:
LUZ GLENN P. MILITANTE
Senior High School Teacher
Ozamiz City School of Arts and Trades
Maningcol, Ozamiz City, Philippines 7200
luzglenn.militante@deped.gov.ph

1. Introduction

Curriculum development remains a cornerstone of educational quality and equity, providing the structural foundation for effective teaching and meaningful learning worldwide (UNESCO, 2021). A well-designed curriculum equips learners not only with core knowledge and skills but also with the competencies required to engage critically with contemporary global challenges (OECD, 2020). In the Philippine basic education system, the ongoing refinement of the K–12 curriculum reflects the government's commitment to strengthen competency-based learning, contextualized instruction, and inclusive pedagogies to meet diverse learner needs (UNESCO, 2021).

A vital element in this endeavor is the provision of lesson exemplars—standardized instructional guides that help teachers translate curriculum standards into daily classroom practice. Effective lesson exemplars support teachers in designing coherent learning sequences, meaningful activities, and balanced assessments (Hattie, 2009). Research consistently shows that high-quality, curriculum-aligned teaching resources contribute to improved instructional practice and better student outcomes, especially when they incorporate clear learning goals, active learning strategies, and authentic assessment tasks (Van den Akker et al., 2013; Darling-Hammond et al., 2019).

Despite this, limited empirical work examines how lesson exemplars themselves align with contemporary educational priorities in low- and middle-income contexts. Much of the existing literature focuses instead on policy implementation or teacher professional development (Tikly, 2011). Yet emerging priorities—such as integrating digital learning, fostering interdisciplinary connections, and embedding sustainability themes—demand that curriculum materials go beyond traditional subject content and pedagogical routines (Voogt et al., 2014; Fullan & Langworthy, 2014). Studies have highlighted that even when national frameworks call for innovation and relevance, gaps can persist at the level of actual teaching materials (UNESCO, 2021).

This underscores the need for systematic evaluations of lesson exemplars to determine whether they truly reflect principles of effective curriculum design—such as coherence, balance, flexibility, and contextual relevance—and whether they adequately integrate technology, authentic assessment, and real-world applications (OECD, 2020). Mixed methods approaches, combining quantitative content analysis with qualitative thematic insights, are well suited to capture both the structural features and nuanced pedagogical patterns embedded in curriculum documents (Creswell & Plano Clark, 2018).

In the global context, education systems are increasingly undergoing curriculum reforms that emphasize competencies such as critical thinking, collaboration, digital literacy, and adaptability (Voogt & Roblin, 2012). These reforms often aim to equip learners for complex and evolving societal demands, integrating pedagogical approaches that are learner-centered, inclusive, and future-oriented (Schleicher, 2018). Within this landscape, lesson design and exemplar development play a critical role in bridging policy intentions with classroom practice. Evaluating the instructional integrity and design quality of lesson

exemplars is therefore essential not only for ensuring curriculum fidelity but also for promoting effective pedagogy.

This study contributes to the broader discourse on curriculum innovation by examining how exemplar-based materials operationalize reform goals in the Philippine context. It offers insights that are transferable to other systems navigating similar challenges of implementing national curricula through prescriptive instructional resources. Moreover, this study applies an Embedded Mixed Methods Documentary Analysis to evaluate the key features and instructional design of Mathematics Grade 7 lesson exemplars within the Philippine Matatag Curriculum (Department of Education [DepEd], 2024). By systematically analyzing these materials, this research aims to provide evidence on how well they support competency-based learning, inclusive instruction, contextualized content, and integration of 21st century skills. The findings aim to inform curriculum developers, teacher educators, and policymakers, contributing to ongoing efforts to enhance the quality, relevance, and adaptability of basic education in the Philippines.

2. Methods

2.1. Research Design

This study employed an embedded mixed methods documentary analysis to evaluate the key features and instructional design of Grade 7 Mathematics lesson exemplars under the Matatag Curriculum. The embedded mixed methods approach combines quantitative content analysis with qualitative thematic analysis within a single framework, allowing for a comprehensive and nuanced understanding of the instructional materials (Creswell & Plano Clark, 2018). The quantitative strand systematically measured the frequency and alignment of curriculum features and design elements, while the qualitative strand explored emergent patterns, instructional strengths, and areas for improvement through thematic coding.

2.2. Setting and Data Sources

The study focused on 32 official Mathematics Grade 7 lesson exemplars provided by the Philippine Department of Education for the implementation of the Matatag Curriculum. These exemplars were designed to guide teachers in planning lessons aligned with national learning standards, covering a full academic year. Each exemplar includes structured sections detailing learning competencies, instructional procedures, assessment tools, and suggested learning activities.

2.3. Research Instruments

Two researcher-developed instruments guided the analysis:

2.3.1. Curriculum Approaches Assessment Tool (CAAT)

The Curriculum Approaches Assessment Tool (CAAT), adapted from established curriculum evaluation models (Tyler, 1949; Van den Akker et al., 2013), was used to examine how the lesson exemplars align with core curriculum construction principles (relevance,

balance, continuity, integration, and flexibility) and curriculum determinants (philosophical, psychological, sociocultural, technological, environmental, and global).

2.3.2. Instructional Design Evaluation Rubric (IDER)

The Instructional Design Evaluation Rubric (IDER) was designed using principles from constructive alignment theory (Biggs, 2014) and recent studies on effective instructional design (Darling-Hammond et al., 2020). This rubric assessed each exemplar's alignment with competency-based learning, developmental appropriateness, inclusivity, authentic learning experiences, balanced assessment, contextualization, and technology integration.

2.4. Data Collection and Analysis

Data collection followed a documentary analysis protocol consistent with best practices in educational design research (Bowen, 2009; Van den Akker et al., 2013). Lesson exemplars were retrieved from official Department of Education repositories and verified for authenticity. For the quantitative content analysis, key features were coded and counted to produce frequency distributions and descriptive statistics, including mean alignment scores.

For the qualitative strand, thematic analysis was used to examine the instructional language, learning activities, and embedded pedagogical strategies (Braun & Clarke, 2006). Thematic patterns were identified through open coding and clustered into categories representing strengths, gaps, and areas for further development.

To strengthen validity, findings from the quantitative and qualitative strands were integrated through triangulation, comparing numerical patterns with thematic insights to produce a holistic evaluation of the lesson exemplars' instructional design and curriculum alignment (Creswell & Plano Clark, 2018).

2.5. Ethical Considerations

This study analyzed only publicly available and officially released lesson exemplars. No primary data were collected from human participants. Full academic integrity and responsible use of AI-assisted tools were maintained, following guidelines on ethical research practice (McAfee & Brynjolfsson, 2017). All interpretations and conclusions were critically reviewed by the researcher to ensure objectivity and scholarly rigor.

3. Results

This section presents the results of the embedded mixed methods documentary analysis of 32 Mathematics Grade 7 lesson exemplars under the Matatag Curriculum. Findings are organized into two parts: quantitative content analysis and qualitative thematic analysis, followed by an integrated summary.

3.1. Quantitative Content Analysis

3.1.1. Alignment with Curriculum Construction Principles

The structured coding revealed that the lesson exemplars strongly align with several core curriculum construction principles. Table 1 summarizes the frequency and percentage of evidence for each principle.

Table 1. *Alignment of Lesson Exemplars with Curriculum Construction Principles*

Principle	Evident (n)	Partially Evident (n)	Not Evident (n)	% Evident
Relevance	30	2	0	93.75%
Continuity	28	4	0	87.50%
Balance	27	5	0	84.38%
Flexibility	22	9	1	68.75%
Integration	25	7	0	78.13%

Note. N = 32 lesson exemplars.

High alignment was found for Relevance (93.75%) and Continuity (87.50%), indicating that most lessons maintain coherent links across topics and learning stages. However, flexibility (68.75%) scored lower, suggesting limited adaptability for diverse learner contexts.

3.1.2. Alignment with Curriculum Determinants

The lesson exemplars also reflected varied levels of alignment with curriculum determinants such as technological integration, sociocultural context, and environmental relevance. Table 2 shows the frequency breakdown.

Table 2. *Alignment of Lesson Exemplars with Curriculum Determinants*

Determinant	Evident (n)	Partially Evident (n)	Not Evident (n)	% Evident
Philosophical	30	2	0	93.75%
Psychological	29	3	0	90.63%
Sociocultural	25	7	0	78.13%
Economic	20	9	3	62.50%
Technological	15	12	5	46.88%
Environmental & Global	10	6	16	31.25%

Notably, Technological (46.88%) and Environmental & Global (31.25%) determinants showed the lowest alignment, indicating gaps in sustainability themes and integration of digital tools.

3.1.3. Alignment with Curriculum Design Models

Findings confirmed strong use of classical curriculum design models like Tyler's and Taba's (West Bengal University, 2020), but weaker integration of interdisciplinary frameworks. See Table 3 for further reference.

Table 3. *Alignment of Lesson Exemplars with Curriculum Development Models*

Model	Evident (n)	Partially Evident (n)	Not Evident (n)	% Evident
Tyler's	30	2	0	93.75%
Taba's	28	4	0	87.50%
Stufflebeam's CIPP	30	2	0	93.75%
Saylor & Alexander	10	12	10	31.25%

(West Bengal State University, 2020; Jain, 2023; Abbas, 2020)

The low alignment with Saylor & Alexander's (Abbas, 2020) interdisciplinary model (31.25%) points to limited cross-curricular integration.

3.2. Qualitative Thematic Analysis

The thematic analysis of the 32 lesson exemplars revealed three prominent themes that highlight both strengths and areas for development in the instructional design of the Matatag Curriculum.

3.2.1. Strong Emphasis on Competency-Based and Learner-Centered Approaches

The first major theme is the strong emphasis on competency-based and learner-centered approaches. Most exemplars clearly specify learning goals aligned with quarterly standards and present progressive skill tasks designed to guide students step by step. For instance, as one excerpt shows, *"The lesson begins with a warm-up activity connecting the new topic to students' prior knowledge,"* which illustrates how lessons activate learners' existing understanding before introducing new concepts. Another exemplar states, *"Learning competencies are explicitly stated at the top of the lesson plan, aligned with quarterly standards,"* confirming the consistent presence of clear objectives. Activities often promote interaction and active participation; one lesson notes, *"Students rotate through stations to practice solving equations, promoting peer interaction."* Opportunities for reflection and self-assessment are also embedded, such as, *"Reflection questions at the end of the lesson allow learners to self-assess understanding."* Additionally, differentiation is evident, as highlighted by the excerpt, *"Remedial activities are provided for struggling students, and enrichment tasks for advanced learners."* Together, these patterns demonstrate that the exemplars strongly operationalize the Matatag Curriculum's goal of structured, competency-based progression and meaningful learner participation.

3.2.2. Limited and Non-Systematic Technology Integration

The second theme identifies limited and non-systematic technology integration. While the curriculum framework advocates for 21st century skills, references to technology in

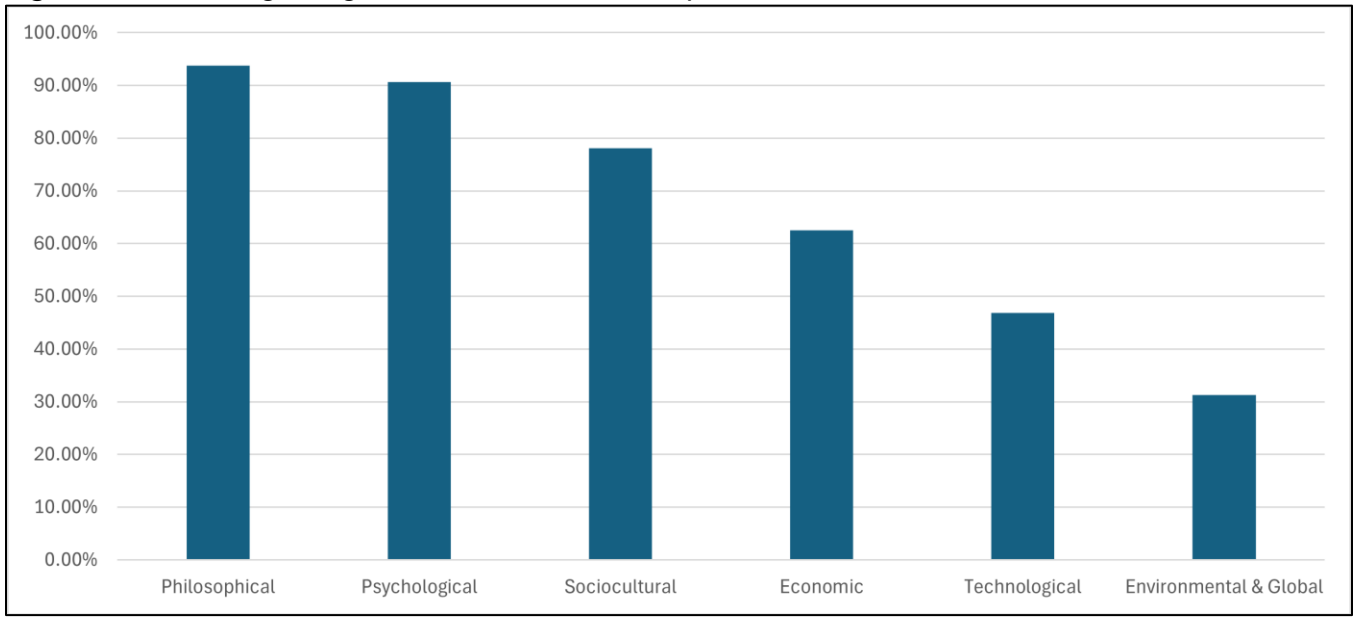
the exemplars are mostly generic or optional. For example, one exemplar simply states, *"The lesson suggests using a projector if available but does not specify digital content,"* showing a lack of clear digital guidance. Another note reads, *"A note says 'Use of online resources encouraged' without providing links or examples,"* which shifts the burden of sourcing materials entirely to the teacher. The omission is further reflected in assessment design: *"No mention of ICT skills or digital tools is included in the assessment tasks."* Instead of providing structured digital activities, the integration of technology is often left to teacher discretion, as shown in *"Integration of technology is left to teacher discretion; no digital simulations or apps are required."* In some cases, the only reference to technology appears in the list of materials: *"The only tech mention is in the materials list: 'computer (optional).'"* These excerpts confirm that despite policy intentions, practical ICT integration in the lesson exemplars remains weak and inconsistent.

3.2.3. Gaps in Sustainability Content, Global Context, and Interdisciplinary Connections

The third theme reveals gaps in sustainability content, global context, and interdisciplinary connections. Many exemplars keep application tasks purely procedural, as seen in, *"Application tasks remain purely computational; no link to real-world contexts like household budgeting or environmental data."* Few lessons connect mathematical skills to community or environmental concerns, such as the observation, *"No examples connect factoring or problem solving to climate change, community issues, or local livelihood contexts."* Broader global relevance is also absent: *"Global relevance is absent — tasks are not linked to SDGs or global math applications."* Opportunities for interdisciplinary learning are minimal, with one exemplar noting, *"Lessons rarely suggest collaboration with other subjects, such as science or economics."* Local and cultural knowledge integration is also largely missing, as captured in, *"Integration of indigenous knowledge or local cultural context is not visible in sample problems."* Collectively, these excerpts highlight how the exemplars underuse opportunities to situate mathematics within sustainability challenges, global frameworks, or cross-curricular problem-solving contexts.

Figure 1 illustrates the percentage alignment of the 32 Mathematics Grade 7 lesson exemplars with key curriculum determinants, including philosophical, psychological, sociocultural, economic, technological, and environmental-global dimensions. The data indicate strong alignment with foundational determinants such as philosophical (93.75%) and psychological (90.63%) factors, moderate alignment with sociocultural (78.13%) and economic (62.5%) aspects, and notably weaker integration of technological (46.88%) and environmental-global (31.25%) contexts.

Figure 1. *Percentage Alignment of Lesson Exemplars with Selected Curriculum Determinants*



The lesson exemplars demonstrate high alignment with core educational foundations such as philosophical and psychological determinants, confirming that the materials are rooted in well-established learning theories and cognitive principles. However, the figure highlights a clear gap in how the exemplars operationalize modern curriculum imperatives, with less than half explicitly embedding technological components and only about one-third integrating environmental or global perspectives. This visual representation reinforces the quantitative and thematic findings that, while the exemplars are structurally sound for competency development, they fall short of systematically incorporating sustainability, digital literacy, and broader global contexts—priorities that are central to 21st century education (OECD, 2020; Voogt et al., 2015).

3.3. Summary of Results

The embedded mixed methods documentary analysis revealed that the Grade 7 Mathematics lesson exemplars under the Matatag Curriculum strongly align with foundational curriculum construction principles such as relevance, continuity, and learner-centeredness, with over 90% of exemplars demonstrating clear competency-based objectives and structured skill progression. The quantitative content analysis confirmed that the majority of lessons reflect sound philosophical and psychological underpinnings, ensuring that content is age-appropriate and cognitively coherent.

However, the findings also highlight notable gaps. Less than half of the exemplars explicitly integrate digital tools or meaningful technology-enhanced learning activities. Similarly, only about one-third embed environmental, global, or sustainability contexts that connect mathematical concepts to real-world issues. Cross-curricular connections remain limited, as evidenced by the low alignment with interdisciplinary curriculum models.

The qualitative thematic analysis reinforced these results, revealing clear patterns: strong emphasis on clear learning goals, stepwise mastery, and student-centered

approaches, but limited practical guidance for technology use, sustainability applications, or interdisciplinary integration. Coded excerpts across exemplars illustrated that while the lessons encourage active learning and differentiated tasks, they often stop short of leveraging technology or embedding mathematics in broader social or environmental contexts.

Taken together, these findings suggest that the lesson exemplars are structurally robust for delivering core competencies but require targeted enhancements to align fully with 21st century learning priorities, including digital literacy, global awareness, and sustainability.

4. Discussion

This study examined the structural integrity and instructional design alignment of Grade 7 Mathematics lesson exemplars under the Matatag Curriculum using an embedded mixed methods documentary analysis. The findings highlight important strengths in how these materials translate curriculum policy into classroom practice but also reveal notable areas for development.

4.1. Interpretation of Key Findings

The findings of this study highlight both the strengths and the gaps in the instructional design of the Grade 7 Mathematics lesson exemplars under the Matatag Curriculum. The quantitative content analysis showed strong alignment with foundational curriculum construction principles, with over 90% of exemplars demonstrating clear relevance, continuity, and balance. For example, relevance (93.75%) and continuity (87.50%) were highly evident, confirming that the exemplars provide structured learning progressions that help learners build knowledge step by step. This aligns with research by Hattie (2009) and Darling-Hammond et al. (2020), who emphasize that clear learning goals, coherent content sequencing, and scaffolded tasks are critical for promoting student achievement and engagement.

This structural alignment was reinforced by the qualitative thematic analysis, which showed that the exemplars strongly support competency-based and learner-centered practices. Warm-up activities, explicit learning outcomes, student interaction through group work, and opportunities for self-assessment were common features, as demonstrated in excerpts like *"Learning competencies are explicitly stated at the top of the lesson plan, aligned with quarterly standards"* and *"Reflection questions at the end of the lesson allow learners to self-assess understanding."* These design features are consistent with the principles of constructive alignment outlined by Biggs (2014) and supported by Zimmerman (2002), who highlights that self-regulation strategies, such as reflection and goal-setting, help students monitor their progress and take ownership of their learning.

However, the study also found important gaps. Quantitative results showed that only 46.88% of the lesson exemplars meaningfully integrated technology, and just 31.25% embedded sustainability or global contexts. These low figures echo wider concerns in the literature that curriculum materials often lag behind policy expectations for 21st century skills

(Voogt et al., 2015). The thematic analysis supports this quantitative pattern, revealing that references to technology were vague and optional, as seen in excerpts like *"A note says 'Use of online resources encouraged' without providing links or examples"* and *"No mention of ICT skills or digital tools is included in the assessment tasks."* This gap aligns with Salami and Spangenberg (2024), who argue that simply encouraging the use of tools like GeoGebra is insufficient unless specific, structured tasks guide teachers and students in meaningful ICT integration.

The absence of sustainability, global context, and interdisciplinary connections further limits the exemplars' alignment with broader curriculum goals. Quantitatively, environmental and global determinants showed the lowest alignment (31.25%). The qualitative excerpts illustrate this clearly: *"Application tasks remain purely computational; no link to real-world contexts like household budgeting or environmental data"* and *"Global relevance is absent — tasks are not linked to SDGs or global math applications."* This is concerning in light of UNESCO's (2021) call for curriculum frameworks to prepare learners for sustainability challenges and global citizenship, and OECD's (2020) emphasis on future-ready schooling that connects learning to real-world contexts. Similarly, the lack of cross-disciplinary design echoes the point made by Drake and Burns (2004), who show that integrated curricula deepen students' conceptual understanding by breaking down disciplinary silos.

Taken together, these results confirm that while the Matatag Curriculum lesson exemplars provide a solid foundation for delivering core competencies, they fall short of fully operationalizing the curriculum's commitment to digital literacy, sustainability, and interdisciplinary learning. Addressing these gaps is essential if lesson exemplars are to truly equip learners with the skills and mindsets needed for complex, rapidly changing global contexts, as argued by Fullan and Langworthy (2014).

4.2. Implications for Practice and Policy

The combined results underscore that while the Grade 7 Mathematics lesson exemplars provide a strong foundation for competency-based, learner-centered instruction, there is an urgent need to close the gap between policy intentions and practical implementation in key areas. The robust alignment with clear learning goals, structured sequencing, and differentiated activities supports the Matatag Curriculum's commitment to building core competencies (Hattie, 2009; Darling-Hammond et al., 2020). The emphasis on warm-up activities, group work, and student self-assessment reflects principles of constructive alignment (Biggs, 2014) and aligns with Zimmerman's (2002) work on promoting self-regulated learning.

However, the study's finding that less than half of the exemplars embed technology systematically reflects a missed opportunity to deliver on 21st century digital skills, which remain a priority for effective modern education (Voogt et al., 2015; Salami & Spangenberg, 2024). Similarly, the weak integration of sustainability and global themes limits learners' ability to apply mathematics to authentic real-world issues, undermining the transformative aims of curriculum frameworks like UNESCO's (2021) vision for education for sustainable futures and the OECD's (2020) emphasis on future-ready schooling.

Without practical examples and structured activities, teachers may struggle to integrate these broader elements into daily lessons (Drake & Burns, 2004; Fullan & Langworthy, 2014). These gaps highlight a critical policy-to-practice divide: curriculum reforms must be supported by clear, detailed exemplars that make digital learning, sustainability, and interdisciplinary connections explicit and actionable for teachers.

4.3. Practical Recommendations

Based on the findings and the supporting literature, this study proposes five key steps to enhance the quality and future-readiness of the Matatag Curriculum lesson exemplars:

4.3.1. Embed Structured ICT Tasks

Develop exemplar activities that include step-by-step use of digital tools like GeoGebra, online math platforms, or virtual simulations. This aligns with recommendations by Salami and Spangenberg (2024), who found that clear guidance is essential for meaningful ICT integration in mathematics instruction.

4.3.2. Contextualize with Sustainability and Local Realities

Revise sample tasks to draw on authentic datasets and real-world contexts, such as local budgeting, environmental monitoring, or climate-related calculations. This approach supports the goals of education for sustainability and global citizenship advocated by UNESCO (2021).

4.3.3. Foster Interdisciplinary Connections

Encourage designers to embed tasks that blend mathematics with science, economics, or social studies, as recommended by Drake and Burns (2004). Examples could include using algebra for analyzing community resource use or connecting geometry to environmental design challenges.

4.3.4. Support Self-Regulated Learning Explicitly

Include reflection prompts and goal-setting activities that help learners monitor progress and develop metacognitive skills, building on Zimmerman's (2002) model for self-regulated learning.

4.3.5. Sustain Collaborative Review and Teacher Co-Design

Establish regular feedback cycles where curriculum developers, teachers, and subject specialists co-develop and refine exemplars to ensure they stay relevant, practical, and responsive to evolving local contexts (Van den Akker et al., 2013; Fullan & Langworthy, 2014).

4.4. Conclusion

This evaluation confirms that the Grade 7 Mathematics lesson exemplars under the Matatag Curriculum are robust in supporting core skills and learner engagement but require targeted improvements in digital integration, sustainability relevance, and interdisciplinary connections to fully align with 21st century learning imperatives. By addressing these areas,

the Department of Education and curriculum designers can ensure that lesson resources translate national curriculum goals into practical, meaningful, and future-ready instruction for all learners.

Beyond its immediate relevance to the Philippine education system, the findings of this study hold significance for international audiences involved in curriculum reform and instructional design. The observed strengths and gaps in the Matatag exemplars reflect universal tensions in translating curriculum policy into practice—such as balancing prescriptiveness with flexibility, embedding 21st-century skills, and contextualizing content for diverse learners. These insights can inform ongoing efforts in other countries to develop and evaluate curriculum-aligned teaching materials that not only meet technical standards but also uphold pedagogical integrity and learner inclusivity.

Bridging the gap between well-structured core content and the realities of digital integration, sustainability, and interdisciplinary learning will better prepare Filipino learners for the demands of a fast-changing, interconnected world. By acting on these recommendations, policymakers, curriculum developers, and educators can ensure that the Matatag Curriculum not only meets standards on paper but empowers learners in practice.

Declaration of the Use of AI

The authors declare that they used OpenAI ChatGPT solely for clerical support in the preparation of this manuscript. The AI's role was limited to assisting with language editing, formatting, and reference styling. All ideas, research design, data analysis, interpretations, and conclusions are the original work of the authors. No generative AI was used to conduct primary research or draw research findings.

Declaration of No Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this research article.

References

1. Abbas, S. H. (2020). *Curriculum Models*. University of Baghdad. https://ircoedu.uobaghdad.edu.iq/wp-content/uploads/sites/26/uploads/ircoedu/Pages/Electrec%20Lec.%20Pscicologi1/CurriculumModels%20%20%D8%AF.%20%D8%B3%D9%84%D8%A7%D9%85.pdf
2. Biggs, J. (2014). Constructive alignment in university teaching. *HERDSA Review of Higher Education, 1*, 5–22. https://herdsa.org.au/system/files/HERDSARHE2014v01p05_0.pdf
3. Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2021). Emergency remote teaching in higher education: mapping the first global online semester. *International journal of educational technology in higher education, 18*(1), 50. https://doi.org/10.1186/s41239-021-00282-x

4. Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27–40. https://doi.org/10.3316/QRJ0902027
5. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa
6. Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE. https://bayanbox.ir/view/2360519664443692 58/9781483344379-Designing-and-Conducting-Mixed-Methods-Research-3e.pdf
7. Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2019). Implications for educational practice of the science of learning and development. *Applied Developmental Science, 24*(2), 97–140. https://doi.org/10.1080/10888691.2018.1537791
8. Department of Education. (2024). Policy Guidelines on the Implementation of the Matatag Curriculum. *DepEd Order No. 10, s. 2024*. https://www.deped.gov.ph/wp-content/uploads/DO_s2024_010.pdf
9. Drake, S. M., & Burns, R. C. (2004). *Meeting Standards Through Integrated Curriculum*. Association for Supervision and Curriculum Development. https://repository.bbg.ac.id/bitstream/606/1/Meeting_Standards_Through_Integrated_Curriculum.pdf
10. Fullan, M., & Langworthy, M. (2014). *A rich seam: How new pedagogies find deep learning*. Pearson. https://www.michaelfullan.ca/wp-content/uploads/2014/01/3897.Rich_Seam_web.pdf
11. Hattie, J. A. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge. https://inspirasifoundation.org/wp-content/uploads/2020/05/John-Hattie-Visible-Learning_-A-synthesis-of-over-800-meta-analyses-relating-to-achievement-2008.pdf
12. Jain, H. (2023, April 7). CIPP Model of Curriculum. *Prep With Harshita*. https://prepwithharshita.com/cipp-model-of-curriculum/
13. McAfee, A., & Brynjolfsson, E. (2017). *Machine, platform, crowd: Harnessing our digital future*. W. W. Norton & Company. https://ide.mit.edu/publication/machine-platform-crowd-harnessing-our-digital-future/
14. OECD. (2020). *Back to the future of education: Four OECD scenarios for schooling*. OECD Publishing. https://doi.org/10.1787/178ef527-en
15. Salami, O. O., & Spangenberg, E. D. (2024). Integration of Geogebra Software Into Mathematics Instruction. *Studies in Learning and Teaching, 5*(1), 118-126. https://doi.org/10.46627/silet.v5i1.343
16. Schleicher, A. (2018). *World Class: How to build a 21st-century school system*. OECD Publishing. http://dx.doi.org/10.1787/4789264300002-en
17. Tikly, L. (2011). Towards a framework for researching the quality of education in low-income countries. *Comparative Education, 47*(1), 1–23. https://doi.org/10.1080/03050068.2011.541671
18. UNESCO. (2021). *Reimagining Our Futures Together: A New Social Contract for Education*. https://doi.org/10.54675/asrb4722

19. Van den Akker, J., Gravemeijer, K., McKenney, S., & Nieveen, N. (Eds.). (2013). *Educational design research*. Routledge. https://www.researchgate.net/profile/T-Reeves/publication/285854675_Design_research_from_a_technology_perspective/links/60d2353292851c34e07cc287/Design-research-from-a-technology-perspective.pdf
20. Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2014). Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of Computer Assisted Learning, 29*(5), 403–413. https://doi.org/10.1111/jcal.12029
21. Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies, 44*(3), 299–321. https://doi.org/10.1080/00220272.2012.668938
22. West Bengal State University. (2020). *What is administrative model of curriculum?*. https://wbsu.ac.in/web/wp-content/uploads/2020/08/SEM4CSU-2_SCA.pdf
23. Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice, 41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**
DOI: **10.5281/zenodo.16430142**

Impact of Digital Learning Tools on Student Engagement and Academic Achievement in Higher Education: A Systematic Review

Roger Paul Fuentes[1] & Ryann B. LaBad[2]
[1]University of Science and Technology of Southern Philippines – Oroquieta Campus, *Philippines*
[2]International Association of Open Educators Inc., *Philippines*

Abstract

This systematic literature review explores how digital learning tools and online platforms influence student engagement and academic achievement in higher education. Using the PRISMA framework, the review synthesizes findings from 34 empirical studies published between 2015 and 2025. Grounded in Self-Determination Theory and Constructivist Learning Theory, the analysis shows that interactive technologies can foster autonomy, competence, and collaboration—essential for increasing student motivation, participation, and performance. Most studies confirm that effective technology integration improves engagement and learning outcomes when matched with sound pedagogy. However, common barriers such as infrastructure limitations, unequal access, gaps in digital literacy, and lack of alignment with teaching design persist, especially in under-resourced contexts. These challenges highlight the need for robust institutional support, faculty training, and adaptive, student-centered learning approaches. This review offers practical insights for educators and policymakers to bridge engagement and achievement gaps through inclusive, evidence-based digital strategies. It also calls for future research to address context-specific needs and examine long-term impacts of technology-enhanced learning. Overall, the findings affirm that when technology, engagement, and institutional support align, digital learning transforms higher education by driving motivation, performance, and retention.

Keywords: digital learning tools, student engagement, academic achievement, higher education, systematic review

Recommended Citation:

Fuentes, R. P., & LaBad, R. B. (2025). Impact of Digital Learning Tools on Student Engagement and Academic Achievement in Higher Education: A Systematic Review. *Ennoia Advances in Social Science, Technology and Education, 01*(02). 53-73. https://doi.org/10.5281/zenodo.16430142

(Fuentes & LaBad, 2025)

Correspondence[§]

[§]*For correspondence regarding this article*:
RYANN B. LABAD
President/CPO
International Association of Open Educators, Inc.
https://iaoeinc.org
+63 908 992 2797 | (088) 531-4084
ryannlabad@iaoeinc.org

1. Introduction

Delivering quality education remains a central goal of higher education institutions worldwide, with student engagement and academic achievement recognized as crucial indicators of educational success (Bond et al., 2020; Rashid & Asghar, 2016). As digitalization accelerates, the integration of digital learning tools and technology-enhanced learning environments has emerged as a dominant strategy to improve student outcomes (Venugopal, 2024; Wekerle et al., 2020). In recent years, research has increasingly explored how digital platforms, interactive technologies, and adaptive learning systems influence students' motivation, engagement, and academic performance in diverse contexts (Kusumo, 2024; Yaseen et al., 2025; McGuinness & Fulton, 2019).

Despite the growing body of evidence, existing studies present mixed findings and contextual differences. Several works have confirmed that technology integration positively influences student engagement and achievement (Sappaile et al., 2023; Uzorka & Odebiyi, 2025; Kim et al., 2019). Others emphasize that while engagement is enhanced, challenges such as technological barriers, data privacy concerns, and unequal infrastructure continue to hinder effective implementation (Nyongesa & Van Der Westhuizein, 2025; Rafiq et al., 2024; Zulfikhar et al., 2024). Furthermore, research highlights the role of mediators like digital readiness, self-regulated learning, and motivational factors in shaping the impact of technology on learning outcomes (Hussain et al., 2018; Reyes et al., 2022; Xiaoyan, 2024).

However, despite the breadth of this literature, there remains a lack of a consolidated synthesis that systematically maps current findings, reconciles varying perspectives, and identifies persistent gaps in understanding how digital tools and learning technologies affect student engagement and academic success, particularly in higher education settings. This gap is especially relevant given the rapid expansion of online learning environments following global disruptions such as the COVID-19 pandemic (Veluvali & Surisetti, 2021).

To address this gap, this systematic literature review (SLR) employs the PRISMA framework to rigorously identify, screen, and synthesize empirical studies that examine the relationships among digital learning tools, student engagement, and academic achievement (Venugopal, 2024; Kusumo, 2024; Sappaile et al., 2023). By systematically analyzing quantitative, qualitative, and mixed-methods evidence, this review aims to clarify what is known about the impact of technology on engagement and achievement, highlight existing challenges, and provide direction for educators and policymakers seeking to maximize the potential of digital learning in higher education.

The primary objective of this systematic literature review is to rigorously identify and synthesize existing empirical studies that investigate the impact of digital learning tools and technology-enhanced learning environments on student engagement and academic achievement in higher education. Specifically, this review seeks to consolidate both quantitative and qualitative findings to clarify the relationships among the use of digital technologies, levels of student engagement and motivation, and their effects on academic performance.

In doing so, this review also aims to examine the benefits and challenges frequently reported in the literature, such as improved access to learning resources, greater interactivity and personalization, alongside persistent obstacles including technological barriers, data privacy concerns, digital literacy gaps, and unequal infrastructure. By comparing results across diverse studies and contexts, the review further intends to highlight discrepancies and gaps in implementation, especially in relation to geographic, institutional, or demographic factors that may influence the effectiveness of digital learning tools.

Ultimately, this review seeks to generate evidence-based insights and practical recommendations that can guide educators, academic leaders, and policymakers in developing and refining strategies for the effective integration of digital technologies. By doing so, it contributes to maximizing the potential of digital learning tools to enhance student engagement and improve academic outcomes in higher education settings.

This systematic literature review is anchored in two interrelated theoretical perspectives that help explain how digital learning tools influence student engagement and academic achievement in higher education: Self-Determination Theory (SDT) and Constructivist Learning Theory.

Rooted in the work of Deci and Ryan (2012), Self-Determination Theory posits that learners are most motivated and engaged when their basic psychological needs for autonomy, competence, and relatedness are met. In the context of digital learning, the integration of interactive platforms, personalized feedback tools, and collaborative technologies can help fulfill these needs. For instance, adaptive learning systems and interactive e-books give students greater control over their learning pace and content (autonomy); digital tutorials, simulations, and instant feedback strengthen their sense of competence; and collaborative tools like discussion forums and group activities nurture a sense of relatedness with peers and instructors (Venugopal, 2024; Kusumo, 2024; Jaiswal, 2020). Together, these factors increase student motivation and engagement, which are essential precursors to academic success.

Meanwhile, Constructivist Learning Theory, based on the foundational ideas of Vygotsky (1978), and Piaget and Inhelder (1969), emphasizes that learners actively construct knowledge through meaningful interaction with content and collaboration with others. Digital tools, such as Learning Management Systems (LMS), gamified applications, and online collaborative platforms, create interactive learning environments where students can engage in authentic problem-solving, peer discussion, and knowledge sharing. This active engagement supports deeper understanding and knowledge retention, which contribute directly to improved academic achievement (Wekerle et al., 2020; Pechenkina et al., 2017).

This review's conceptual framework therefore posits that digital learning tools, when aligned with constructivist principles and designed to support learners' psychological needs as described in SDT, foster greater student engagement across behavioral, cognitive, and emotional dimensions. In turn, heightened engagement strengthens academic achievement, as supported by multiple studies showing significant positive correlations among these constructs (Sappaile et al., 2023; Uzorka & Odebiyi, 2025). However, this relationship is moderated by factors such as technological infrastructure, digital literacy, and

institutional support, which can either facilitate or hinder the effective integration of technology (Rafiq et al., 2024; Zulfikhar et al., 2024).

2. Method

This study employed a Systematic Literature Review (SLR) as its primary research design, guided by the PRISMA 2020 guidelines (Page et al., 2021). As a form of desktop research, the SLR systematically collects, evaluates, and synthesizes existing empirical evidence from published studies, rather than generating new primary data.

This design was chosen to comprehensively map and critically analyze the current state of knowledge on the impact of digital learning tools and technology-enhanced learning environments on student engagement and academic achievement in higher education. By focusing on high-quality secondary data, the SLR provides an organized and transparent approach to identify consistent patterns, reveal contradictions, and uncover gaps that may exist across diverse contexts and research methodologies.

A desktop research approach is particularly appropriate for this topic because the rapid expansion of digital technologies in education has produced a large and diverse body of literature that can benefit from systematic consolidation and analysis. Synthesizing these findings will generate evidence-based insights that can inform educators, institutional leaders, and policymakers seeking to design and implement effective digital learning strategies to maximize student engagement and academic success.

2.1. Search Strategy

To ensure comprehensive coverage of relevant literature, a systematic search strategy was employed in accordance with the PRISMA 2020 guidelines (Page et al., 2021). The search focused on peer-reviewed journal articles, conference papers, and reputable reports published in English that examined the relationship between digital learning tools, student engagement, and academic achievement in higher education contexts.

The search was conducted across multiple electronic databases, including Google Scholar, ERIC, Scopus, Web of Science, and Philippine E-Journals. To maximize coverage, additional searches were performed through institutional repositories and reference lists of relevant articles.

Key search terms were developed based on preliminary scanning of the literature and refined through iterative testing. Boolean operators and truncation were used to combine keywords effectively. Example search terms included:

("*digital learning tools*" OR "*educational technology*" OR "*e-learning platforms*" OR "*technology-enhanced learning*" OR "*online learning tools*")
AND
("*student engagement*" OR "*academic engagement*" OR "*motivation*" OR "*self-regulated learning*")
AND
("*academic achievement*" OR "*academic performance*" OR "*student success*" OR "*learning outcomes*").

The search was limited to publications from 2015 to 2025 to capture contemporary research trends and the rapid evolution of digital learning environments, particularly during and after the COVID-19 pandemic.

All identified records were imported into a reference manager to remove duplicates systematically. Titles and abstracts were screened for relevance according to the inclusion and exclusion criteria, followed by full-text screening to confirm eligibility. Studies that met the criteria were included in the final synthesis.

A PRISMA (Page et al., 2021) flow diagram was developed to document the number of records identified, screened, excluded, and included at each stage of the review process.

2.2. Screening & Eligibility Criteria

To ensure the relevance and quality of included studies, clear inclusion and exclusion criteria were established. Studies were eligible for inclusion if they met the following criteria: (a) the study focused on the use of digital learning tools, technology-enhanced learning, or online learning platforms in higher education contexts; (b) the study examined student engagement, motivation, or self-regulated learning as a key variable; (c) the study reported academic achievement, performance, or learning outcomes as a dependent variable; (d) the study presented empirical findings, either quantitative, qualitative, or mixed-methods; and (e) the study was published in a peer-reviewed journal or reputable academic source between 2015 and 2025 to capture recent developments and trends.

Studies were excluded if they (a) focused solely on primary or secondary education; (b) did not directly examine the relationship between digital tools, engagement, and achievement; (c) were non-empirical, such as opinion pieces, commentaries, or conceptual papers without data; or (d) were published in a language other than English due to feasibility constraints.

2.3. Data Extraction and Analysis

A structured and systematic approach was used to extract and analyze data from all studies included in this review. A standardized data extraction form was developed to collect key information from each study, including author(s) and year of publication, country or context, research design and methods, sample size and participants, types of digital tools or platforms used, dimensions of student engagement examined (behavioral, cognitive, emotional), measures of academic achievement, key findings, and any reported challenges or limitations.

All data were extracted manually and carefully cross-checked with the full texts to ensure accuracy and completeness. Where information was incomplete or unclear, supplementary sections of the articles were reviewed for clarification.

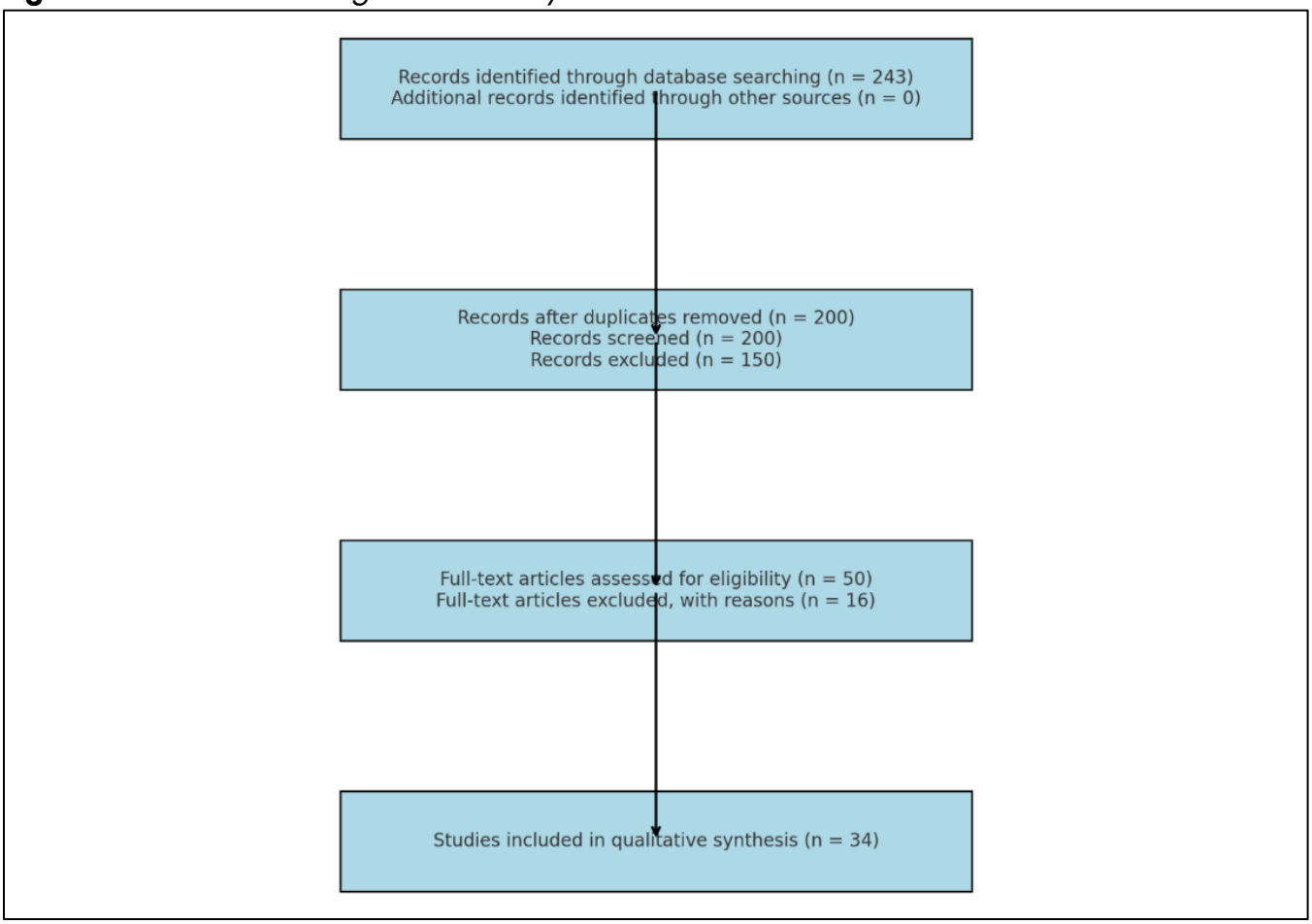
The extracted data were then analyzed using a narrative synthesis approach, which is appropriate for systematically reviewing diverse study designs and mixed-methods research. Studies were first categorized thematically based on key concepts informed by the Self-Determination Theory and Constructivist Learning Theory. Findings were organized around major themes, such as the effects of digital learning tools on student engagement,

the relationship between engagement and academic achievement, and factors that facilitate or hinder effective technology integration.

Descriptive summaries were used to present quantitative results, including reported correlations, effect sizes, or percentages where available. Qualitative findings were coded and grouped to identify recurring patterns, benefits, and challenges highlighted across different contexts. This combined synthesis integrates both quantitative trends and qualitative insights to draw evidence-based conclusions and identify research gaps that warrant further investigation.

To ensure transparency and methodological rigor, Figure 1 presents the PRISMA Flow Diagram, which visually summarizes each stage of the review process — from the initial identification of records through to the final inclusion of studies that informed this systematic review's findings and conclusions.

Figure 1. *PRISMA Flow Diagram of the Systematic Literature Review*


Records identified through database searching (n = 243)
Additional records identified through other sources (n = 0)
Records after duplicates removed (n = 200)
Records screened (n = 200)
Records excluded (n = 150)
Full-text articles assessed for eligibility (n = 50)
Full-text articles excluded, with reasons (n = 16)
Studies included in qualitative synthesis (n = 34)

3. Results

The results of this systematic literature review present a comprehensive summary of the current evidence on how digital learning tools and online platforms affect student engagement and academic achievement in higher education. Drawing on 34 carefully selected studies, the findings are organized around recurring themes that emerged from

both quantitative and qualitative data. This section outlines how digital technologies, pedagogical approaches, and institutional factors interact to shape learning experiences, highlighting both the positive impacts and the persistent challenges that influence the effective integration of digital tools in diverse educational contexts.

3.1. Included Studies

The studies span various contexts, disciplines, and institutional settings, offering diverse insights into the benefits, challenges, and conditions that affect technology integration. For clarity, the included studies are clustered thematically to highlight common patterns and unique contributions across different research perspectives.

Table 1 provides a detailed summary of the 34 empirical studies that met the inclusion criteria for this systematic literature review. Each study is presented with its author(s), publication year, main focus, and key findings. The table highlights the diverse research contexts, methodologies, and thematic emphases that contribute to understanding how digital learning tools and technology integration influence student engagement, motivation, and academic performance in higher education. This summary serves as the basis for the synthesis and critical discussion of patterns, similarities, and research gaps that follow in this review.

Table 1. *Summary of Included Studies*

Author(s)	Year	Focus	Key Findings
Venugopal	2024	Digital platforms and learning outcomes	Positive correlation between platform use and engagement/achievement; benefits include access and personalization; barriers include tech challenges.
Kusumo	2024	Technology-based learning and engagement	Tech-based learning increases active participation and achievement; integration is an effective strategy for engagement.
Sappaile et al.	2023	Digital platforms and student engagement	Positive link between platforms and engagement; engagement predicts achievement; platforms account for 25% of variance in performance.
Khrisat & Fakhouri	2024	E-learning strategies	Strategic use impacts student perceptions; students value connectivity/accessibility; tools enhance self-study and performance.
Nyongesa & Van Der Westhuizein	2025	Digital teaching tools and equity	Digital tools improve environments when matched with pedagogy; issues include infrastructure and literacy gaps; urban-rural disparities noted.
Wekerle et al.	2020	Tech in class and learning activities	Technology supports constructive and active learning; interactive activities are strongest predictors; tech use still underutilized.

Brugliera	2024	Risk management and innovation	Risk management and digital literacy boost learning innovation; modern environments strengthen these relationships.
Uzorka & Odebiyi	2025	Digital tools and online education	Tools enhance engagement and bridge theory/practice; positive impact on achievement; challenges: access and literacy.
Gutu et al.	2024	Engagement, leadership, and digitalization	Engagement supports academic leadership; digitalization can reduce engagement; peer groups and leadership styles matter.
Jaiswal	2020	Educational tech and attitudes	Positive attitudes toward ed-tech; student performance improved from pre- to post-test; collaborative learning enhanced.
Zen et al.	2022	PBOL method for entrepreneurs	PBOL boosts engagement and performance; fun atmosphere; alternative for entrepreneurship educators.
Zulfikhar et al.	2024	Tech integration conditions	Infrastructure, teacher training, curriculum design, and access are key; tech integration influences engagement and motivation.
Bond et al.	2020	Global SLR on engagement and ed-tech	Reviewed 243 studies; behavioral engagement most common; gaps in regional research; confirms dominant countries in literature.
Pinto & Leite	2020	Digital tech use	Positive impact on learning; LMS, ICT, and publishing tech are common; blended learning supports flexibility and participation.
Yaseen et al.	2025	Adaptive & AI tools	Adaptive tech, feedback, and AI increase engagement; higher digital literacy increases involvement; integration should match students' capabilities.
McGuinness & Fulton	2019	E-tutorials and blended learning	E-tutorials reinforce classroom learning; accessible design supports engagement; students prefer blended formats over fully online.
Simelane-Mnisi	2023	LMS tools and engagement	LMS activities foster interaction; academics use multiple tools; institutional support needed for authentic assessments and tool selection.
Nadeem et al.	2023	Game-based learning	Games increase engagement/motivation over traditional activities; leaderboards mixed; female students prefer less comparison.

Pechenkina et al.	2017	Gamified mobile app	App improved retention by 12.23% and grades by 7%; students using app performed better than non-users.
Veluvali & Surisetti	2021	LMS and continuity during pandemic	LMS ensured uninterrupted learning; supported interactivity and student-centered approaches.
Hussain et al.	2018	Predicting engagement	Machine learning classifiers predict engagement; logins and activity strongly tied to engagement and higher assessment scores.
Sarkar et al.	2017	Tech and digital natives	Technology in curriculum supports learning and performance for digital natives.
Bucea-Manea-Țoniş et al.	2021	Motivation, collaboration, and emerging tech	Motivation boosts collaborative quality, engagement, outcomes; MOOCs, AR/VR, gamification, blockchain linked to better learning.
Jha et al.	2022	Engagement themes	Behavioral, emotional, and cognitive engagement affect satisfaction, motivation, performance, connection, and retention.
Burvill et al.	2022	Interactive e-books	Students using e-books scored higher; more effective as summative tool; supports digital natives' engagement.
Rafiq et al.	2024	Digital tools & barriers	Tools improve engagement, motivation, achievement; challenges: tech issues, resource limits, lack of training; calls for more support.
Kim et al.	2019	Engagement as mediator	Engagement and digital readiness mediate e-learning perceptions; attitude alone does not predict achievement.
Dunn & Kennedy	2019	Engagement vs. usage	Engagement with TEL predicts achievement; intrinsic motivation matters; student-made social media activity strongest predictor.
Rashid & Asghar	2016	Tech, engagement, self-directed learning	Technology use boosts self-directed learning and engagement; academic performance affected indirectly through these variables.
Xiaoyan	2024	Digital strategies & motivation	Respondents favor learning platforms and digital security; strategies, motivation, and application strongly related.
Caguioa & Lipa	2023	Digital competence	Students competent overall; family income and gadgets influence competence;

			students advised to invest in gadgets and manage budgets.
Reyes et al.	2022	Academic motivation & self-regulated learning	No significant link found between motivation/self-regulation and achievement; calls for new predictors in the Philippine context.
Terania & Dela Cruz	2024	Gen Ed correlations	Strong links among general education courses; communication and science literacy emphasized; overall above-average GPAs.
Acenas et al.	2023	Study skills & engagement	Strong correlation between study skills, emotional state, engagement, and achievement; engagement is strongest predictor in online contexts.

3.2. Digital Tools, Learning Platforms, and Academic Performance

Several studies directly examined the link between the use of digital learning tools or platforms and their effect on student engagement and achievement.

Venugopal (2024) reported a significant positive correlation between digital learning platform usage and both student engagement and academic performance, while highlighting benefits like increased access to resources and challenges such as technological barriers and privacy concerns.

Kusumo (2024) found that technology-based learning significantly enhances active participation, interaction, and ultimately, academic achievement, supporting technology integration as an effective strategy for deeper engagement.

Sappaile et al. (2023) confirmed a positive link between digital platform use, student engagement, and achievement, noting that digital learning platforms and engagement accounted for 25% and 15% of the variance in academic outcomes.

Khrisat & Fakhouri (2024) emphasized that strategically implemented e-learning platforms shape student perceptions, enhance connectivity, foster self-study habits, and positively impact academic performance.

Nyongesa & Van Der Westhuizein (2025) showed that digital teaching tools improve learning environments and achievement when matched with pedagogy, but pointed out barriers such as infrastructure, internet access, and digital literacy, with urban-rural disparities requiring attention.

Wekerle et al. (2020) demonstrated that technology in classrooms promotes constructive and interactive learning activities, which positively influence learning outcomes, but noted that the full potential of technology is not always fully utilized.

Uzorka & Odebiyi (2025) found that digital tools bridge theory and practice, enhance communication between students and lecturers, and boost engagement and achievement, yet issues like limited internet access and digital literacy remain challenges.

Pechenkina et al. (2017) reported that a gamified mobile app improved student retention by 12.23% and average grades by 7.03%, showing how targeted digital innovations can directly raise performance.

Veluvali & Surisetti (2021) highlighted the critical role of learning management systems (LMS) in maintaining student engagement during the COVID-19 pandemic, showcasing their flexibility and student-centered design.

Burvill et al. (2022) found that students who used an interactive e-book scored significantly higher than those who did not, demonstrating the potential of interactive digital materials as effective engagement and assessment tools.

Dunn & Kennedy (2019) showed that students' engagement with, rather than mere usage of, Technology Enhanced Learning (TEL) predicted academic success, with social media activity being the strongest predictor.

Rafiq et al. (2024) concluded that digital tools substantially improve student engagement, motivation, and achievement, but highlighted barriers like insufficient resources and training.

Kim et al. (2019) found that academic engagement and digital readiness mediate the relationship between e-learning attitudes and academic performance, suggesting that readiness and active engagement are key.

Rashid & Asghar (2016) tested a path model showing technology's indirect effect on academic performance via self-directed learning and engagement, affirming the positive influence of technology when combined with self-regulation.

3.3. Engagement and Learning Behaviors

The second cluster focuses on how student engagement behaviors, motivation, and interaction with technology shape learning processes and outcomes in higher education.

Jaiswal (2020) showed that both educators and students have positive attitudes toward educational technologies, which improve student performance. The study reported clear gains from pre-test to post-test scores and emphasized the role of technology in enhancing collaborative learning and engagement.

Zen et al. (2022) investigated the PBOL (Project-Based Online Learning) method, finding that it creates a fun and interactive learning atmosphere that boosts student engagement and academic performance, particularly for students training to become entrepreneurs.

Zulfikhar et al. (2024) highlighted that sufficient infrastructure, teacher training, curriculum relevance, and institutional support are vital for effective technology integration. The study confirmed that student engagement and motivation are strongly linked to academic success.

Bond et al. (2020) systematically reviewed 243 studies from 33 countries, finding that educational technology most frequently impacts behavioral engagement, followed by affective and cognitive engagement. The review confirmed the global relevance of technology's role in enhancing student participation.

Pinto & Leite (2020) found that digital technologies, such as LMS, ICTs, and publishing tools, positively impact learning processes by promoting active engagement and participation, especially in blended or flipped learning environments.

Yaseen et al. (2025) emphasized that adaptive learning technologies, personalized feedback, and AI tools increase engagement. Students with higher digital literacy were more engaged, showing that digital competence and technology use are deeply connected.

McGuinness & Fulton (2019) reported that e-tutorials were effective in reinforcing classroom learning and allowed students to review materials at their own pace. Students favored blended learning environments that combine online and face-to-face elements for greater engagement.

Simelane-Mnisi (2023) found that over 90% of academics agreed that LMS activities foster student interaction. Faculty used various LMS and third-party tools like discussion forums and video conferencing apps to enhance interactivity, but highlighted the need for institutional support for authentic assessments.

Nadeem et al. (2023) showed that digital game-based learning has a more positive impact on engagement and motivation than traditional online activities. However, tools like leaderboards can motivate or demotivate, depending on how they are used and on student preferences.

Hussain et al. (2018) found that logins to discussion forums, course materials, and subpages strongly correlated with student engagement, and that higher engagement predicted better assessment scores. Machine learning models like decision trees and classifiers effectively predicted student engagement.

Sarkar et al. (2017) showed that integrating technology into the curriculum helps digital natives learn more effectively, with positive effects on academic performance.

Bucea-Manea-Țoniș et al. (2021) highlighted that student motivation has a significant positive impact on the quality of collaborative work, which supports higher engagement and improved learning outcomes. Emerging technologies like MOOCs, AR, VR, and blockchain were noted for their positive effects on performance and student involvement.

Jha et al. (2022) identified three engagement themes — behavioral, emotional, and cognitive — that shape student satisfaction, motivation, retention, and performance. The study provided a detailed look at how educational technologies sustain engagement in higher education.

Acenas et al. (2023) concluded that student study skills, emotional states, and engagement levels strongly correlate with academic performance. Engagement emerged as the strongest predictor of academic success in online learning contexts, underscoring its central role.

3.4. Institutional Support, Leadership, and Contextual Factors

The third cluster highlights how institutional frameworks, leadership, and student context shape the effectiveness of digital tools and student engagement in higher education.

Brugliera (2024) found that risk management and digital technology literacy both significantly and positively influence learning innovation performance. Modern learning

environments amplify these relationships, underscoring the role of institutional leadership in supporting innovative digital learning practices.

Gutu et al. (2024) explored how student learning engagement impacts the practice of academic leadership, showing a positive effect. Interestingly, the study also found that rapid digitalization in higher education can negatively affect student learning engagement if not managed well. The research emphasized that peer categories and leadership styles are critical in steering digital transformation successfully.

Xiaoyan (2024) focused on students' views on digital learning strategies, finding that respondents agreed strongly on the importance of learning platforms and digital security skills in boosting motivation. The study identified significant relationships among digital learning strategies, motivation, and technology application, indicating that effective strategies and institutional emphasis on security enhance engagement and readiness.

Caguioa & Lipa (2023) examined the digital competence of students and its relationship to various profile factors. The study showed that students are generally highly competent in using information and communication facilities but less so in connectivity and digital content. Family income and available gadgets significantly affect digital competence, suggesting that institutional support for equitable access to devices and connectivity is crucial.

Reyes et al. (2022) found no significant relationship between academic motivation or self-regulated learning and academic achievement among college students in the Philippines. This highlights the need for institutions to identify other predictors of academic success and tailor support systems accordingly.

Terania & Dela Cruz (2024) explored correlations among General Education Courses (GECs) and revealed an interconnectedness of knowledge and skills across disciplines. The strongest ties were between communication and science subjects, demonstrating how institutional curriculum design can promote holistic academic development.

3.5. Synthesis of Findings

The systematic review of 34 studies provides strong, converging evidence that the integration of digital learning tools and platforms in higher education contributes positively to student engagement, motivation, and academic achievement. Across diverse contexts, the studies confirm that when implemented effectively, educational technologies offer significant opportunities for active learning, collaboration, and personalized learning experiences.

A dominant pattern in the reviewed research is the clear positive relationship between student engagement and academic performance. Studies such as those by Venugopal (2024), Sappaile et al. (2023), Acenas et al. (2023), and Hussain et al. (2018) show that active, constructive, and interactive engagement with digital tools correlates strongly with higher grades, better retention, and improved knowledge acquisition. Moreover, digital platforms such as LMS's, interactive e-books, gamified apps, and adaptive learning technologies were found to facilitate this engagement by creating flexible, student-centered learning environments (Wekerle et al., 2020; Pechenkina et al., 2017; Yaseen et al., 2025).

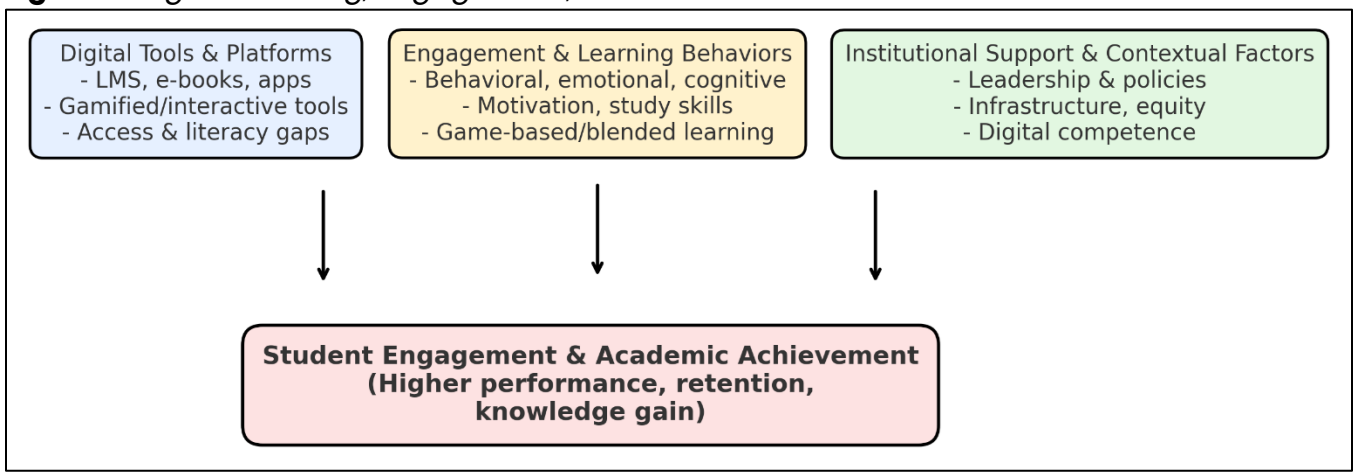
The findings also reveal that institutional factors and implementation strategies play a critical role in determining the success of digital learning initiatives. Studies like Brugliera (2024), Gutu et al. (2024), and Caguioa & Lipa (2023) emphasize the importance of institutional support, digital literacy training, and access to adequate infrastructure and devices. Without these, barriers such as technological difficulties, limited internet access, and inconsistent digital competence persist, limiting the effectiveness of technology integration (Uzorka & Odebiyi, 2025; Nyongesa & Van Der Westhuizein, 2025).

Interestingly, some studies add nuance by highlighting contexts where digitalization may not directly improve outcomes. For example, Gutu et al. (2024) noted that poorly managed higher education digitalization can negatively affect engagement, while Reyes et al. (2022) showed that motivation and self-regulated learning alone did not significantly predict achievement in some contexts, pointing to the need for more complex, multi-faceted support systems.

Another insight is the pivotal role of innovative pedagogical strategies and the alignment of technology with sound learning design. The success of game-based learning (Nadeem et al., 2023), problem-based online learning (Zen et al., 2022), and flipped or blended learning models (Pinto & Leite, 2020; McGuinness & Fulton, 2019) illustrates that digital tools are most effective when matched with pedagogical techniques that foster active participation and collaboration.

Figure 2 illustrates how Digital Tools and Platforms, Engagement and Learning Behaviors, and Institutional Support and Contextual Factors interact as three interconnected clusters that influence higher education outcomes. Digital platforms provide opportunities for interactive learning, but their effectiveness depends on engagement behaviors and supportive institutional contexts. Ultimately, the convergence of these factors leads to improved student engagement, academic performance, and retention.

Figure 2. *Digital Learning, Engagement, and Institutional Factors*



Overall, digital tools can be powerful enablers of improved learning outcomes when combined with strong institutional support, thoughtful pedagogical integration, and strategies that prioritize equitable access and student readiness. Challenges remain, particularly regarding infrastructure gaps and the digital divide, but the collective evidence

provides clear pathways for leveraging technology to advance student engagement and academic achievement in higher education.

4. Discussion

The findings of this systematic literature review reinforce the growing consensus that digital learning tools and online platforms have a positive and measurable impact on student engagement and academic achievement in higher education. Consistent with the principles of Self-Determination Theory (Deci & Ryan, 2012), many of the included studies demonstrate that when students have opportunities for autonomy, competence, and relatedness through interactive technologies, they are more likely to participate actively and perform better academically. For example, studies by Venugopal (2024) and Sappaile et al. (2023) provide clear evidence that engagement acts as a crucial mediator between technology use and achievement outcomes.

The findings also align with Constructivist Learning Theory (Vygotsky, 1978; Piaget & Inhelder, 1969), which emphasizes that students learn best when they actively construct knowledge through meaningful interaction and collaboration. Tools such as LMS's, gamified apps, and collaborative platforms foster these conditions, as seen in the work of Pechenkina et al. (2017) and Wekerle et al. (2020), where interactive and constructive activities directly enhance learning outcomes.

However, the synthesis also uncovers persistent challenges that must be addressed to fully realize the potential of digital learning tools. Several studies (Uzorka & Odebiyi, 2025; Nyongesa & Van Der Westhuizein, 2025) point to the digital divide, technical infrastructure issues, and gaps in digital competence as ongoing barriers. These findings highlight the need for equitable access and robust institutional support systems, echoing the conclusions of Brugliera (2024) and Zulfikhar et al. (2024) who argue that investment in teacher training, risk management, and technology literacy is essential for sustainable innovation.

Moreover, the review reveals that the effectiveness of technology depends on how well it is integrated with pedagogical strategies. Studies on problem-based online learning (Zen et al., 2022), digital game-based learning (Nadeem et al., 2023), and flipped classrooms (Pinto & Leite, 2020) show that digital tools are most impactful when used to support active, student-centered approaches rather than as add-ons to traditional lectures. This underscores that technology alone does not guarantee better outcomes; rather, its instructional design and contextual fit determine its success.

Finally, some findings add nuance by challenging assumptions. For instance, Gutu et al. (2024) cautions that poorly managed digital transformation can hinder engagement, and Reyes et al. (2022) suggests that academic motivation and self-regulated learning do not always translate to improved achievement without other supportive factors. These insights emphasize that more research is needed to unpack the complex interactions among motivation, engagement, institutional support, and learning design.

In sum, the reviewed evidence confirms that digital learning tools, when thoughtfully integrated, can empower students and enhance learning outcomes. However, achieving this

potential requires addressing barriers related to access, digital competence, and pedagogical alignment. These findings contribute valuable guidance for higher education institutions seeking to adapt to an increasingly digital learning landscape.

5. Conclusion

5.1. Implications and Recommendations

The findings of this systematic literature review have significant implications for policymakers, higher education institutions, educators, and technology developers aiming to enhance student engagement and academic achievement through digital learning tools. The consistent evidence demonstrating positive correlations between technology integration and student outcomes suggests that digital learning environments, when implemented thoughtfully, can meaningfully improve learner motivation, participation, and performance. However, recurring challenges such as unequal access to infrastructure, insufficient digital literacy, and a lack of pedagogical alignment highlight the need for more strategic and equitable implementation.

Based on these insights, this review recommends that higher education institutions invest in robust digital infrastructures, including stable internet connectivity and up-to-date learning management systems, to ensure inclusive access for all students, especially those in rural or under-resourced settings. Faculty members should be supported through targeted professional development programs that build their capacity to design, deliver, and assess technology-enhanced learning experiences effectively. Institutions should also promote adaptive learning tools and personalized feedback systems that align with Self-Determination Theory and Constructivist Learning Theory, fostering student autonomy, competence, and active knowledge construction.

Policymakers are encouraged to develop guidelines and funding mechanisms that prioritize equitable access to digital education resources and address gaps in digital literacy. Collaborative partnerships between educational institutions and technology providers can drive innovation in tools that are user-friendly, secure, and pedagogically sound. Future research should continue to explore the dynamic interplay between digital tools, student motivation, and learning outcomes across diverse contexts to inform evidence-based practices.

In sum, a coordinated effort among stakeholders is necessary to translate the potential of digital learning tools into meaningful educational improvements. With sustained support and intentional strategies, the challenges identified can be addressed, maximizing the opportunities for student engagement and achievement in the evolving landscape of higher education.

5.2. Conclusion

Digital learning tools offer transformative opportunities for higher education when used strategically and inclusively. Stakeholders must continue to prioritize evidence-based practices, sustained investment in infrastructure and training, and policies that support

digital equity and innovation. By doing so, higher education institutions can help ensure that all learners benefit from the evolving digital landscape — engaging more deeply with their studies and achieving meaningful academic success.

Effective integration of digital tools in higher education is not determined by technology alone but by its alignment with student engagement behaviors and the presence of strong institutional support. When these three clusters converge, they create a synergistic framework that maximizes the potential of digital learning, fostering sustained student engagement, higher academic performance, and improved retention.

Statement on the Use of Artificial Intelligence

The authors acknowledge that artificial intelligence tools were used solely to support clerical tasks such as formatting text, checking grammar, and generating diagrams in the preparation of this manuscript. All substantive analysis, interpretation, and final writing were conducted by the authors.

Statement of No Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this systematic literature review.

References

1. Acenas, A. A., Alia, S. & Lucero, R. (2023). Examination of Study Skills, Emotions, Engagement, and Academic Performance of Mechanical Engineering Students of CIT-University Taking Online Courses: Bases for Student and Faculty Development Program. *Journal of Interdisciplinary Perspectives, 1*(1), 6-12. https://doi.org/10.5281/zenodo.8312819
2. Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., & Kerres, M. (2020). Mapping research in student engagement and educational technology in higher education: a systematic evidence map. *International Journal of Educational Technology in Higher Education, 17*(1). https://doi.org/10.1186/s41239-019-0176-8
3. Brugliera, P. (2024). The Effectiveness of Digital Learning Platforms in Enhancing Student Engagement and Academic Performance. *Journal of Education, Humanities, and Social Research, 1*(1), 26–36. https://doi.org/10.70088/xq3gy756
4. Bucea-Manea-Țoniş, R., Martins, O. M. D., Bucea-Manea-Țoniş, R., Gheorghiță, C., Kuleto, V., Ilić, M. P., & Simion, V.-E. (2021). Blockchain Technology Enhances Sustainable Higher Education. *Sustainability, 13*(22), 12347. https://doi.org/10.3390/su13221234

5. Burvill, S., Owens, S., & Organ, K. (2022). The digital explosion: It's impact on international student achievement. *The International Journal of Management Education, 20*(1), 100585. https://doi.org/10.1016/j.ijme.2021.100585
6. Caguioa, J. & Lipa, M. (2023). Digital Competence of Bachelor of Physical Education Students. *Psychology and Education: A Multidisciplinary Journal, 10*(6), 627-641. https://doi.org/10.5281/zenodo.8132211
7. Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 416–436). Sage Publications Ltd. https://doi.org/10.4135/9781446249215.n21
8. Dunn, T. J., & Kennedy, M. (2019). Technology Enhanced Learning in higher education; motivations, engagement and academic achievement. *Computers & Education, 137*(137), 104–113. https://doi.org/10.1016/j.compedu.2019.04.004
9. Gutu, I., Medeleanu, C. N., & Asiminei, R. (2024). The limits of learning engagement and academic leadership within the higher education digitalization process - analysis by using PLS SEM. *PLoS ONE, 19*(11), e0306079–e0306079. https://doi.org/10.1371/journal.pone.0306079
10. Hussain, M., Zhu, W., Zhang, W., & Abidi, S. M. R. (2018). Student Engagement Predictions in an e-Learning System and Their Impact on Student Course Assessment Scores. *Computational Intelligence and Neuroscience, 2018*, 1–21. https://doi.org/10.1155/2018/6347186
11. Jaiswal, P. (2020). Integrating Educational Technologies to Augment Learners' Academic Achievements. *International Journal of Emerging Technologies in Learning (iJET), 15*(02), 145–159. https://doi.org/10.3991/ijet.v15i02.11809
12. Jha, M., Jha, S., Thakur, S., & Xu, J. (2022). Student Engagement and Leaning through Digital Educational Technology. *2022 IEEE Asia-Pacific Conference on Computer Science and Data Engineering (CSDE)*. https://doi.org/10.1109/csde56538.2022.10089226
13. Kusumo, B., Sutrisman, H., Simanjuntak, R., Prihartanto, A., Askrening, A., & Yunus, R. (2024). The Impact of Technology-Based Learning on Student Engagement and Achievement in the Digital Era. *International Journal of Educational Evaluation and Policy Analysis, 1*(4), 41–53. https://doi.org/10.62951/ijeepa.v1i4.55
14. Khrisat, Z., & Fakhouri, H. N. (2024). Impact of E-learning Tools (Moodle, Microsoft Teams, Zoom) on Student Engagement and Achievement at Jordan Universities. *International Journal of Interactive Mobile Technologies (IJIM), 18*(18), 125–145. https://doi.org/10.3991/ijim.v18i18.49895
15. Kim, H. J., Hong, A. J., & Song, H.-D. (2019). The roles of academic engagement and digital readiness in students' achievements in university e-learning environments. *International Journal of Educational Technology in Higher Education, 16*(1). https://doi.org/10.1186/s41239-019-0152-3
16. McGuinness, C., & Fulton, C. (2019). Digital Literacy in Higher Education: A Case Study of Student Engagement with E-Tutorials Using Blended Learning. *Journal of Information Technology Education: Innovations in Practice, 18*, 001-028. https://doi.org/10.28945/4190

17. Nadeem, M., Oroszlanyova, M., & Farag, W. (2023). Effect of Digital Game-Based Learning on Student Engagement and Motivation. *Computers, 12*(9), 177. https://doi.org/10.3390/computers12090177
18. Nyongesa, W. J., & Van Der Westhuizein, J. (2025). The impact of digital teaching tools on student engagement and learning outcomes in higher education in Africa. *International Journal of Innovative Research and Scientific Studies, 8*(4), 264–280. https://doi.org/10.53894/ijirss.v8i4.7777
19. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., & McGuinness, L. A. (2021). The PRISMA 2020 statement: an Updated Guideline for Reporting Systematic Reviews. *British Medical Journal, 372*(71). https://doi.org/10.1136/bmj.n71
20. Pechenkina, E., Laurence, D., Oates, G., Eldridge, D., & Hunter, D. (2017). Using a gamified mobile app to increase student engagement, retention and academic achievement. *International Journal of Educational Technology in Higher Education, 14*(1). https://doi.org/10.1186/s41239-017-0069-7
21. Piaget, J., & Inhelder, B. (1969). *The Psychology of the Child* (H. Weaver, Trans.). New York, NY: Basic Books. https://www.alohabdonline.com/wp-content/uploads/2020/05/The-Psychology-Of-The-Child.pdf
22. Pinto, M., & Leite, C. (2020). Digital technologies in support of students learning in Higher Education: literature review. *Digital Education Review, 37*(37), 343–360. https://doi.org/10.1344/der.2020.37.343-360
23. Rafiq, S., Iqbal, S., & Afzal, A. (2024). The impact of digital tools and online learning platforms on higher education learning outcomes. *Al-Mahdi research journal (MRJ), 5*(4), 359-369. https://ojs.mrj.com.pk/index.php/MRJ/article/view/342
24. Rashid, T., & Asghar, H. M. (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior, 63*(63), 604–612. https://doi.org/10.1016/j.chb.2016.05.084
25. Reyes, M. C., Mendoza, M. T., Brucal, J. A., Eusebio, D. C., Lim, E. P., Olfindo, D. V. & Manguiat, G. C. (2022). ACADEMIC MOTIVATION AND SELF-REGULATED LEARNING IN PREDICTING ACADEMIC ACHIEVEMENT OF LETRAN FRESHMEN. *ANTORCHA, 9*(1). https://ejournals.ph/function/reader1/read2/web/reader.php?id=uploads%2Farchive%2FCSJC%2FVol.+9+No.+1+%282022%29%2FArticles%2FArticle3.pdf&di=17204
26. Sappaile, B. I., Lasinggaru, E. D. F., & Mokodenseho, S. (2023). Analyzing the Influence of Digital Learning Platforms on Student Engagement and Academic Performance. *West Science Interdisciplinary Studies, 1*(02), 65–73. https://doi.org/10.58812/wsis.v1i6.89
27. Sarkar, N., Ford, W.G., & Manzo, C. (2017). Engaging Digital Natives through Social Learning. *Journal on Systemics, Cybernetics and Informatics, 15*, 1-4. https://www.iiisci.org/journal/pdv/sci/pdfs/EB015YQ17.pdf
28. Simelane-Mnisi, S. (2023). Effectiveness of LMS Digital Tools Used by the Academics to Foster Students' Engagement. *Education Sciences, 13*(10), 980. https://doi.org/10.3390/educsci13100980

29. Terania, L. & Dela Cruz, J. D. (2024). Correlational Analysis of Academic Performance in General Education Courses During the Digital Learning Space. *Journal of Interdisciplinary Perspectives, 2*(7), 360-367. https://doi.org/10.69569/jip.2024.0159
30. Uzorka, A., & Odebiyi, O. A. (2025). Impact of Digital Learning Tools on Student Engagement and Achievement. *JOURNAL of DIGITAL LEARNING and DISTANCE EDUCATION, 4*(1), 1436–1445. https://doi.org/10.56778/jdlde.v4i1.511
31. Veluvali, P., & Surisetti, J. (2021). Learning Management System for Greater Learner Engagement in Higher Education—A Review. *Higher Education for the Future, 9*(1), 107-121. https://doi.org/10.1177/23476311211049855
32. Venugopal, A. (2024). Impact of Digital Learning Platforms on Student Academic Performance. *Medicon Engineering Themes, 6*(5), 19-21. https://doi.org/10.55162/mcet.06.208
33. Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press. https://doi.org/10.2307/j.ctvjf9vz4
34. Wekerle, C., Daumiller, M., & Kollar, I. (2020). Using digital technology to promote higher education learning: The importance of different learning activities and their relations to learning outcomes. *Journal of Research on Technology in Education, 54*(1), 1–17. https://doi.org/10.1080/15391523.2020.1799455
35. Wong, L. (2013). Student Engagement with Online Resources and Its Impact on Learning Outcomes. *Journal of Information Technology Education: Innovations in Practice, 12*(1), 129–146. https://doi.org/10.28945/1829
36. Xiaoyan, Z. (2024). Digital Learning Strategies, Motivation, and Technology Application Among Chinese Higher Education Students. *Asia Pacific Journal of Management and Sustainable Development, 12*(2 Part 4), 75-88. https://doi.org/10.70979/EQRN3946
37. Yaseen, H., Mohammad, A. S., Ashal, N., Abusaimeh, H., Ali, A., & Sharabati, A.-A. A. (2025). The Impact of Adaptive Learning Technologies, Personalized Feedback, and Interactive AI Tools on Student Engagement: The Moderating Role of Digital Literacy. *Sustainability, 17*(3), 1133. https://doi.org/10.3390/su17031133
38. Zen, Z., Reflianto, Syamsuar, & Ariani, F. (2022). Academic achievement: the effect of project-based online learning method and student engagement. *Heliyon, 8*(11), e11509. https://doi.org/10.1016/j.heliyon.2022.e11509
39. Zulfikhar, R., Mustofa Mustofa, Hamidah, E., Heppy Sapulete, Joni Wilson Sitopu, & Mike Nurmalia Sari. (2024). Dampak Integrasi Teknologi dalam Pembelajaran Terhadap Prestasi Akademis Mahasiswa Perguruan Tinggi. *Journal on Education/Journal on Education, 6*(4), 18381–18390. https://doi.org/10.31004/joe.v6i4.5787

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**
DOI: **10.5281/zenodo.16916640**

ICT Integration in Edukasyong Pantahanan at Pangkabuhayan (EPP) in the MATATAG Curriculum: A Comparative Analysis

Milaflor B. Basibasi & Liezl Marie B. Dagondon
Northwestern Mindanao State College of Science and Technology, *Philippines*

Abstract

This paper examined the integration of Information and Communication Technology (ICT) in Edukasyong Pantahanan at Pangkabuhayan (EPP) within the Philippine MATATAG Curriculum framework for elementary education. Using a comparative synthesis approach, five recent empirical studies were reviewed to analyze how ICT strategies were designed and implemented and how they influenced learners' EPP performance. Results showed that structured, competency-based multimedia lessons and e-learning models positively impacted learners' knowledge and practical skills, as demonstrated by the CB-MILE and ROY A. MOLANDA EdTech models. However, the studies also revealed that teacher ICT proficiency and technology availability alone did not guarantee improved learning outcomes without clear instructional design and strong home support. These findings aligned with recent international literature, highlighting that context, technological leadership, and practical lesson alignment were crucial for effective ICT integration. The synthesis confirmed that ICT worked best in EPP when digital tools were embedded in authentic, skill-based tasks supported by engaged teachers and communities. By clarifying what worked in actual elementary classrooms and what conditions enabled positive results, this study provided evidence-based insights that teachers, school heads, and policymakers can use to strengthen EPP instruction and ensure that the MATATAG Curriculum delivers relevant, life-ready skills for Filipino learners.

Keywords: ICT integration, Edukasyong Pantahanan at Pangkabuhayan, EPP, MATATAG Curriculum, MATATAG Curriculum analysis

Recommended Citation:

Basibasi, M. B., & Dagondon, L. M. B. (2025). ICT Integration in Edukasyong Pantahanan at Pangkabuhayan (EPP) in the MATATAG Curriculum: A Comparative Analysis. *Ennoia Advances in Social Science, Technology and Education, 01*(02), 74-84. https://doi.org/10.5281/zenodo.16916640

(Basibasi & Dagondon, 2025)

Correspondence[**]

[**]*For correspondence regarding this article*:
MILAFLOR B. BASIBASI
Teacher III
Maximino S. Laurete Sr. Central School
Calabayan, Ozamiz City, Philippines 7200
milaflor.basibasi@nmsc.edu.ph

1. Introduction

The Philippine Department of Education (DepEd) has continued to pursue curriculum reforms aimed at learning recovery, equipping learners with life skills, and preparing them for 21st-century demands. In 2023, DepEd introduced the MATATAG Curriculum, which prioritizes decongesting overloaded content, strengthening foundational skills, and ensuring that education is relevant to learners' lived contexts (Department of Education [DepEd], 2024). Edukasyong Pantahanan at Pangkabuhayan (EPP), the core practical subject for Grades 4 to 6, plays a vital role in this framework as the foundation of Technology and Livelihood Education (TLE) in higher grades.

The MATATAG EPP/TLE Curriculum Guide emphasizes four core areas: Home Economics, Agriculture, Industrial Arts, and Information and Communication Technology (ICT), positioning ICT both as a distinct skill set and as an enabling tool for enhancing practical competencies (DepEd, 2024). This dual role reflects national priorities such as the DepEd Computerization Program (DepEd Order No. 78, s. 2010) and the Omnibus Guidelines on the Implementation of Limited Face-to-Face Learning Modality (DepEd Order No. 47, s. 2022), which both advocate for digital integration in everyday teaching and learning (DepEd, 2010; DepEd, 2022).

Yet, ICT integration in practice is highly context-dependent. Global research has shown that teachers' attitudes, digital competence, and leadership support significantly influence technology adoption (Akram, Abdelrady, Al-Adwan, & Ramzan, 2022). Locally, Alayan (2022) demonstrated that school heads' technological leadership directly shapes teachers' capacity to integrate ICT, while Aquino (2024) noted that the effectiveness of the MATATAG Curriculum partly depends on how teachers adapt ICT resources to specific learning contexts.

Philippine studies on ICT in EPP reflect these complexities. Lucido (2023) reported that learners' ICT self-management skills correlated positively with their EPP performance, though access barriers remained. Jarabese (2021) showed that structured multimedia lessons significantly improved Grade 5 pupils' scores. Meanwhile, Quejada and Cuenca (2023) highlighted that the home environment, rather than technology access alone, more strongly influenced EPP learning outcomes. Ayuson (2022) found that high teacher ICT proficiency did not automatically translate to learner competence. Molanda (2019) developed an EdTech model showing that customized e-learning modules could raise performance when design and access were properly aligned.

While these studies provide valuable insights, they remain fragmented. What has been missing is an integrated comparative analysis that synthesizes how different strategies, enabling conditions, and barriers interact in actual EPP classrooms. This paper therefore contributes original knowledge by conducting a comparative synthesis of recent Philippine studies, moving beyond a simple literature review to generate new, consolidated insights into the effectiveness of ICT integration in EPP. By identifying common patterns, divergences, and enabling conditions, this study offers evidence-based guidance for teachers, school heads,

and policymakers. In doing so, it strengthens the role of EPP under the MATATAG Curriculum in delivering skill-based, life-ready education for Filipino learners.

2. Methodology

This comparative synthesis methodology ensures that even with limited local studies, the analysis highlights realistic, context-specific lessons to guide EPP teachers and policymakers in strengthening ICT integration in alignment with the MATATAG Curriculum's goals.

This study employed a comparative synthesis design to systematically review and analyze recent Philippine research on the integration of Information and Communication Technology (ICT) in Edukasyong Pantahanan at Pangkabuhayan (EPP) at the elementary level. Rather than using statistical meta-analysis, this study used a narrative approach to compare multiple studies side by side, drawing out consistent patterns, contextual differences, and implications for practice within the framework of the MATATAG Curriculum.

The selection of studies for this synthesis followed clearly defined criteria to ensure relevance and rigor. To be included, a study needed to focus specifically on the integration of ICT as an intervention, strategy, or significant factor in the teaching and learning of EPP in Philippine elementary schools, particularly within Grades 4 to 6. Studies that extended to Technology and Livelihood Education (TLE) in junior high school were excluded to keep the focus on the elementary level as outlined in the MATATAG Curriculum. Each study had to present original empirical data, whether quantitative, qualitative, or mixed-methods in nature, and demonstrate how ICT was implemented or perceived in relation to EPP learning outcomes.

To ensure that the findings reflected the most recent policy and curricular shifts, only studies published or conducted within the last five years, from 2019 to 2024, were included. This timeframe was chosen to capture research that aligns with the rollout of the MATATAG Curriculum and the continued expansion of ICT access through DepEd's digital learning initiatives. To ensure credibility, only studies published in peer-reviewed journals, reputable conference proceedings, or institutional archives with verifiable access were considered. Lastly, only studies written in English were included to ensure clarity and accuracy of interpretation.

A systematic search was conducted using Elicit.com, Google Scholar, ResearchGate, Philippine E-Journals, institutional repositories, and the official DepEd research portal. Combinations of relevant keywords, such as "ICT integration," "Edukasyong Pantahanan at Pangkabuhayan," "EPP," "elementary," "Philippines," "digital learning," and "MATATAG Curriculum," were used to locate potential studies. Reference lists of identified articles were also manually screened to capture additional research that met the same selection standards.

For each study that met all inclusion criteria, detailed information was extracted, including the author, year of publication, research design, sample characteristics, type of ICT intervention or factor examined, main findings, and any noted contextual enablers or

barriers. This information was organized into a comparative framework to make similarities, contrasts, and patterns more visible. The extracted evidence was then synthesized narratively, focusing on how ICT was used in EPP, what outcomes were reported in terms of learners' knowledge, skills, and attitudes, and what contextual conditions affected the success or limitations of ICT integration.

Due to the small number of studies and their varied designs, no attempt was made to statistically combine effect sizes; instead, the synthesis highlights qualitative patterns and lessons that can inform future practice, policy, and curriculum implementation under the MATATAG framework.

3. Results and Discussion

This presents and discusses the findings of this comparative synthesis of recent Philippine studies on the integration of Information and Communication Technology (ICT) in Edukasyong Pantahanan at Pangkabuhayan (EPP) at the elementary level. By consolidating diverse research conducted under varied school contexts but within the same thematic focus, this section highlights the main outcomes of ICT integration in EPP, clarifies key similarities and differences across studies, and draws implications for curriculum delivery and practice under the MATATAG framework.

3.1. Description of Included Studies

A total of five empirical studies conducted between 2019 and 2024 met the selection criteria and were included in this synthesis. Table 1 provides an overview of each study's context, design, participants, specific ICT focus, and key findings.

Table 1. *Description of Studies Included in the Comparative Synthesis*

Author(s)	Year	Title	Design	Sample	ICT Focus	Key Findings
Lucido	2023	Challenges in Learning ICT, Self-Management Skills and Pupil's Performance in EPP	Correlational	Grade 5 pupils	Learner self-management in ICT use	Positive link between ICT self-management and EPP performance; limited by device access
Jarabese	2021	Competency-Based Multimedia-Assisted Interactive Learning Experience	Experimental (pre-post)	143 Grade 5 pupils	CB-MILE structured multimedia lessons	Significant increase in mean test scores and engagement
Quejada & Cuenca	2023	Technology and Home	Descriptive-correlational	Grade 5 pupils	Technology availability and home context	Home environment stronger predictor

Author(s)	Year	Title	Design	Sample	ICT Focus	Key Findings
		Environment Factors				of EPP outcomes than technology factors alone
Ayuson	2022	Teachers' ICT Proficiency and Learner Competence	Descriptive	EPP teachers	Teachers' digital competence and use	High teacher ICT proficiency but no significant direct impact on learners' ICT performance
Molanda	2019	ROY A. MOLANDA EdTech Model	Developmental-descriptive	28 admins, 135 teachers, Grade 5 pupils	E-learning instructional tool and differentiated content	Improved learners' grades in EPP; EdTech model effective when accessible and well-structured

3.2. Comparative Results

Across these studies, ICT integration was found to have generally positive effects on EPP learning outcomes when implemented through structured, learner-centered interventions. Studies that applied guided, competency-based multimedia lessons or interactive e-learning tools reported measurable improvements in pupils' knowledge and skills (Jarabese, 2021; Molanda, 2019). In contrast, research focused solely on the presence of technology, teacher proficiency, or general device access revealed that these factors do not automatically translate into stronger EPP outcomes unless supported by clear instructional design and contextual support (Ayuson, 2022; Quejada & Cuenca, 2023).

Lucido's (2023) study reinforces this point, showing that when pupils manage their ICT use effectively and have supportive learning environments, their EPP performance improves. However, barriers such as limited device availability and inadequate home support continue to hinder consistent benefits for all learners.

Table 2 summarizes how each study's main finding aligns along two dimensions: whether the study demonstrated direct measurable learning gains from ICT and whether it highlighted critical enabling conditions that shaped its effectiveness.

Table 2. *Summary of Findings Across Included Studies*

Study	Direct Positive Learning Impact	Contextual or Conditional Factors Highlighted
Lucido (2023)	✓	✓
Jarabese (2021)	✓	—
Quejada & Cuenca (2023)	—	✓
Ayuson (2022)	—	✓
Molanda (2019)	✓	—

Note: ✓ indicates the presence of the condition.
— indicates the absence of the condition.

3.3. Synthesis of Similarities and Differences

The similarities and differences across the five studies are summarized in Table 3, which highlights converging evidence on the benefits of structured ICT interventions and the varying contextual factors that shape their effectiveness.

Table 3. *Matrix of Similarities and Differences Across Studies*

Study	Similarities with Others	Differences / Unique Findings
Lucido (2023)	Supports the view that ICT use enhances EPP performance when contextualized, similar to Jarabese (2021) and Molanda (2019).	Emphasized *learner self-management skills* as a critical factor; highlighted device access barriers.
Jarabese (2021)	Aligned with Molanda (2019) in showing that structured ICT interventions improve learning outcomes.	Focused on *CB-MILE* multimedia lessons, providing experimental evidence of significant test score gains.
Quejada & Cuenca (2023)	Agreed with Ayuson (2022) and Lucido (2023) that contextual factors strongly shape ICT effectiveness.	Found that *home environment* was a stronger predictor of EPP performance than ICT access.
Ayuson (2022)	Consistent with Quejada & Cuenca (2023) in showing ICT access/proficiency alone is insufficient.	Revealed that *teacher ICT proficiency* did not directly enhance learner outcomes.
Molanda (2019)	Similar to Jarabese (2021) in reporting that structured digital content raised learner achievement.	Introduced the *ROY A. MOLANDA EdTech model* as a practical framework for differentiated e-learning.

As shown in Table 3, the studies consistently demonstrated that ICT integration produced the most positive outcomes when embedded in structured, competency-based approaches, as reflected in the interventions of Jarabese (2021) and Molanda (2019). In contrast, investigations centered on contextual conditions, such as those by Quejada and

Cuenca (2023) and Ayuson (2022), revealed that access to technology and teacher proficiency were insufficient on their own to raise learner performance without adequate support systems. Lucido (2023) bridged these perspectives by showing that ICT effectiveness depended not only on instructional design but also on learners' capacity for self-management and the availability of devices. Taken together, these findings suggest that ICT integration in EPP requires both strong instructional design and enabling conditions to deliver meaningful improvements in learner outcomes.

Taken together, the findings suggest that ICT integration in EPP works best when it is purposefully designed to deliver competency-based, interactive, and accessible learning materials. The CB-MILE approach (Jarabese, 2021) and the ROY A. MOLANDA Model (Molanda, 2019) both offered clear learning paths, structured activities, and digital content that directly addressed EPP competencies, leading to improved performance among elementary learners.

Meanwhile, studies that investigated teachers' ICT readiness or general availability of technology found these factors to be necessary but insufficient. Ayuson (2022) demonstrated that high teacher ICT proficiency did not automatically increase students' mastery of EPP competencies. Quejada and Cuenca (2023) noted that while pupils had access to technology, their home environments, including parental support and study spaces, were stronger predictors of performance. Lucido (2023) confirmed that learners benefit most when they have the self-management skills to handle digital tasks and when practical barriers such as lack of devices or unstable internet connections are addressed.

4. Conclusion

This comparative synthesis has shown that the integration of Information and Communication Technology (ICT) in Edukasyong Pantahanan at Pangkabuhayan (EPP) at the Philippine elementary level can contribute positively to learners' knowledge and practical skills when implemented through structured, interactive, and competency-based designs. Studies such as Jarabese (2021) and Molanda (2019) demonstrated that well-designed multimedia lessons and accessible e-learning modules directly aligned with EPP competencies can lead to measurable gains in test scores and engagement. By contrast, studies that examined teacher ICT proficiency (Ayuson, 2022) or general technology availability (Quejada & Cuenca, 2023) confirmed that these factors alone are insufficient to guarantee improved EPP outcomes. Instead, consistent with Lucido's (2023) findings, learner self-management skills and a supportive home environment remain crucial for ensuring that ICT tools translate into meaningful learning.

These results reinforce what recent international literature also underscores. For instance, Akram et al. (2022) and Alayan (2022) point out that teachers' positive perceptions and school leaders' technological support must be matched with clear curricular integration for ICT to be genuinely effective. Similarly, Aquino (2024) highlights that the impact of the MATATAG Curriculum relies heavily on how schools operationalize its principles in day-to-day teaching, including digital lesson delivery that is relevant and context-aware. Together,

these sources confirm that ICT must not merely be present but must be embedded in authentic, competency-based tasks, especially in skill-focused subjects like EPP.

4.1. Implications for Policy and Practice

Teachers, school heads, and curriculum designers must invest not only in infrastructure and training but also in developing structured digital resources tailored for EPP competencies. In addition, strengthening partnerships with parents and communities may help ensure that learners can manage their use of digital tools effectively, bridging gaps in access and home support. These actions align directly with the MATATAG Curriculum's goal of delivering relevant, responsive, and future-ready education.

4.2. Limitations of This Study

This synthesis also recognizes its own limitations. Because the pool of Philippine studies specifically examining ICT integration in EPP remains limited, this synthesis relied on only five studies, some with descriptive or small-scale designs. No formal statistical meta-analysis was possible, which means that generalizations should be made with caution. Furthermore, most studies focused on Grades 5 and 6, with little evidence available on how ICT integration impacts younger elementary learners or how different regions with varied connectivity contexts compare.

4.3. Future Research Directions

Future research should therefore expand the evidence base by exploring diverse ICT models for EPP in more varied Philippine contexts, including rural, remote, and disadvantaged schools. Mixed-methods and longitudinal studies could also help clarify how teacher proficiency, learner self-management, and home factors interact over time to shape ICT's effectiveness. Researchers might also examine how new tools — such as mobile apps, offline digital resources, and community-based digital hubs — can make EPP more accessible for families with limited connectivity.

4.4. Key Takeaway

This synthesis highlights that meaningful ICT integration in EPP may be achievable and beneficial when grounded in sound design, community support, and clear alignment with curriculum goals. By acting on these insights, educators and policymakers may strengthen the delivery of practical, life-ready skills to Filipino elementary learners, fully realizing the promise of the MATATAG Curriculum in the digital age.

Conflict of Interest

The author declares no known conflict of interest in the conduct of this study or the preparation of this manuscript.

Author's Note

This paper was prepared using publicly available studies and open-access references. The author confirms that AI assistance was used solely for clerical and editorial support, such as formatting, referencing, and organizing the manuscript, while the analysis and interpretation remain entirely the author's own.

References

1. Akram, H., Abdelrady, A. H., Al-Adwan, A. S., & Ramzan, M. (2022). Teachers' perceptions of technology integration in teaching-learning practices: A systematic review. *Frontiers in Psychology, 13*, 920317. https://doi.org/10.3389/fpsyg.2022.920317
2. Alayan, G. (2022). School Heads' Technological Leadership and Teachers' ICT Integration in Instruction in the Public Elementary Schools in the Division of Quezon. *Psychology and Education: A Multidisciplinary Journal, 3*(2), 2–15. https://doi.org/10.5281/zenodo.6852893
3. Aquino, E. S. (2024). Developing an evaluation scale for assessing the effective implementation of MATATAG Curriculum in Philippine public schools: Exploratory sequential design. *Journal of Interdisciplinary Perspectives, 2*(5), 168–184. https://doi.org/10.5281/zenodo.10959702
4. Department of Education. (2010). *DepEd Order No. 78, s. 2010: Guidelines on the Implementation of the DepEd Computerization Program*. https://www.deped.gov.ph/2010/06/10/do-78-s-2010-guidelines-on-the-implementation-of-the-deped-computerization-program-dcp/
5. Department of Education. (2022). *DepEd Order No. 47, s. 2022: Omnibus Guidelines on the Implementation of Limited Face-to-Face Learning Modality*. https://www.deped.gov.ph/2022/07/21/do-47-s-2022-omnibus-guidelines-on-the-implementation-of-limited-face-to-face-learning-modality/
6. Department of Education. (2024). *MATATAG Curriculum: Edukasyong Pantahanan at Pangkabuhayan / Technology and Livelihood Education Curriculum Guide Grades 4 and 7*. https://www.deped.gov.ph/wp-content/uploads/MATATAG-EPP_TLE-CG-Grades-4-and-7.pdf
7. Jarabese, R. G. (2021). Utilization of Competency-Based Multimedia-Assisted Interactive Learning Lesson Experience to Enhance the Academic Performance of Grade Five Pupils in EPP. *Galaxy International Interdisciplinary Research Journal, 9*(5), 376-381. https://doi.org/10.17605/OSF.IO/JG4SV
8. Lucido, J. B. (2023). Challenges in Learning Information Communication Technology, Self-Management Skills and Pupil's Performance in EPP. Psychology and Education: A Multidisciplinary Journal, 11, 877–889. https://doi.org/10.5281/zenodo.8220258
9. Molanda, R. A. (2019). Roy A. Molanda: An Effective Edtech Model. *4th International Congress on Action Research, Action Learning, ARAL 2019 Congress Proceedings*, 17-25. https://www.araldlsu.net/_files/ugd/530b52_71d2ee50d1b8450da2c67e4afcbf6eed.pdf#page=27

10. Quejada, I. C. S., & Cuenca, Z. (2023). Technology and Home Environment Factors as Correlates of Pupil's Learning Outcomes in EPP V. *International Journal of Social Science Humanity & Management Research, 2*(7). https://doi.org/10.58806/ijsshmr.2023.v2i7n02

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**
DOI: **10.5281/zenodo.16918154**

Maximino S. Laurete Sr. Central School Grade 6 Academic Performance Before, During, and After the COVID-19 Pandemic

Angel Rose D. Pano & Liezl Marie B. Dagondon
Northwestern Mindanao State College of Science and Technology, *Philippines*

Abstract

The COVID-19 pandemic caused unprecedented disruptions in Philippine basic education, shifting instruction from face-to-face to modular learning. This study examined how these changes affected the academic performance of Grade 6 learners at Maximino S. Laurete Sr. Central School (MSLCS) across three phases: pre-pandemic, pandemic, and post-pandemic recovery. A descriptive quantitative design anchored on the Input-Process-Output (IPO) framework was employed. Final grades from 42 Grade 6 learners were traced from Grade 1 (pre-pandemic), Grades 2–3 (pandemic), and Grades 4–5 (post-pandemic). The Kruskal-Wallis H-test was used to compare performance across clusters (Satisfactory, Very Satisfactory, Outstanding). Significant variation was observed in the Satisfactory cluster ($H = 12.85$, $df = 5$, $p = 0.025$). Median grades declined during the pandemic (Year 2 = 83) but improved post-pandemic (Year 4 = 88). In contrast, the Very Satisfactory cluster ($H = 8.46$, $p = 0.132$) and Outstanding cluster ($H = 9.08$, $p = 0.106$) showed no statistically significant differences, with mean grades ranging narrowly from 85.21–87.57 and 87.33–92.67, respectively. Findings suggest that lower-performing learners were more vulnerable to modality shifts, while higher achievers maintained stability. Policy implications point to the need for equity-focused remediation, adaptive teaching strategies, and contingency planning. However, reliance on grade data alone limits the analysis, underscoring the importance of mixed-method approaches in future studies.

Keywords: COVID-19 pandemic, academic performance, Grade 6, instructional transition, learning recovery, Philippines

Recommended Citation:

Pano, A. R. D., & Dagondon, L. M. B. (2025). Maximino S. Laurete Sr. Central School Grade 6 Academic Performance Before, During, and After the COVID-19 Pandemic. *Ennoia Advances in Social Science, Technology and Education, 01*(02), 85-98. https://doi.org/10.5281/zenodo.16918154

(Pano & Dagondon, 2025)

Correspondence[††]

[††]*For correspondence regarding this article*:
ANGEL ROSE D. PANO
Teacher III
Maximino S. Laurete Sr. Central School
Calabayan, Ozamiz City, Philippines 7200
angelrose.pano@deped.gov.ph

1. Introduction

The COVID-19 pandemic prompted a monumental shift in education worldwide, forcing a rapid transition from traditional in-person classes to remote and modular learning modalities (Bertoletti & Karpiński, 2024). In the Philippines, this transition exacerbated long-standing challenges such as limited infrastructure and unequal access to quality education (Lu, 2024). The World Bank (2022) reported that learning poverty in the country surged from 69.5% in 2019 to 91% in 2021, indicating that nine out of ten Filipino children under the age of 10 could not read a simple text (Lu, 2024). In response, the government introduced recovery programs, including the Academic Recovery and Accessible Learning (ARAL) Program, to mitigate learning loss and restore educational outcomes (Academic Recovery and Accessible Learning Program Act, 2024).

Global studies have highlighted multiple dimensions of the crisis. The digital divide limited students' access to online platforms, especially in disadvantaged households (Kuhfeld & Tarasawa, 2020), while the sudden transition disrupted routines and heightened students' stress, loneliness, and disengagement (Meinck et al., 2022; Tadesse & Muluye, 2020). For many education systems, the challenge extended beyond sustaining instruction to ensuring equity and mental health support.

As schools reopened, attention shifted toward addressing "learning gaps" caused by prolonged disruptions (Allen et al., 2024; Cortés-Albornoz et al., 2023). Evidence suggests that younger and socioeconomically disadvantaged learners were most affected, particularly in literacy and numeracy (Engzell et al., 2021; Kuhfeld et al., 2022). In the Philippine context, modular distance learning was the primary instructional mode during lockdowns. While it allowed continuity, it faced issues of uneven distribution, content quality, and weak monitoring of learner progress (Cajurao et al., 2023; Talimodao & Madrigal, 2021). The Department of Education acknowledged significant learning losses and called for targeted interventions (Hernando-Malipot, 2022).

While the pandemic's overall impact on student learning outcomes has been widely documented, few studies have traced performance trends across distinct stages of the crisis—before, during, and after school closures—at the elementary level in the Philippines. This gap is especially relevant for Grade 6 students, who experienced disruptions during critical years leading to their transition to secondary education.

The present study addresses this gap by examining the academic performance of Grade 6 students at Maximino S. Laurete Sr. Central School (MSLCS) across three phases: pre-pandemic, during pandemic, and post-pandemic recovery. Using the Input-Process-Output (IPO) framework and non-parametric statistical analysis, the study analyzes variations in performance clusters to provide evidence on how learners were affected and how recovery unfolded. By doing so, it contributes to local and international discussions on resilience, learning recovery, and strategies for building inclusive and adaptive education systems in times of crisis.

2. Methodology

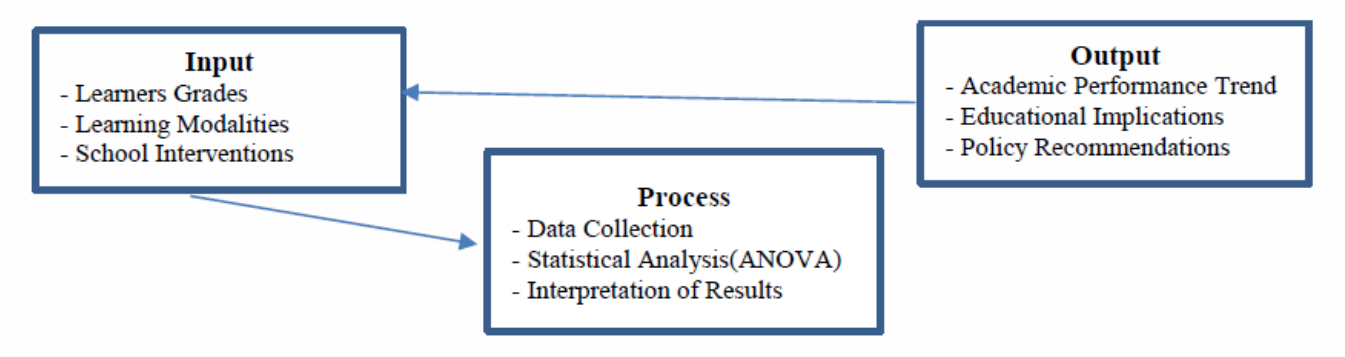
2.1. Research Design

This study employed a descriptive quantitative research design to examine the trends in the academic performance of Grade 6 learners at Maximino S. Laurete Sr. Central School (MSLCS) across three key periods: before the COVID-19 pandemic, during its height, and in the post-pandemic transition phase. This design was selected to systematically document patterns in final grades and analyze differences using non-parametric statistical methods.

2.2. Conceptual Framework

The conceptual framework of this study is anchored in the Input-Process-Output (IPO) model, which is a widely recognized approach in instructional design for illustrating how contextual factors, resources, and activities interact to produce intended outcomes (Richey, et al., 2010). In this study, the IPO framework organizes the flow from the students' academic records and learning modalities (Input), through systematic data gathering and statistical analysis (Process), to the identification of performance trends and implications for educational practice (Output). See Figure 1 for further reference.

Figure 1. *Input-Process-Output (IPO) Conceptual Framework of the Study*



The input includes learners' final grades in core subjects, collected from Grade 1 (pre-pandemic baseline), Grades 2–3 (pandemic phase), and Grades 4–5 (post-pandemic recovery). It also considers school-level interventions such as the use of printed modular learning and subsequent remedial programs. While the process involves data collection through permanent student records, ensuring proper authorization and confidentiality. The collected grades were then analyzed using the Kruskal-Wallis H-Test, a non-parametric equivalent of one-way ANOVA, to determine whether statistically significant differences exist across the three periods. Finally, the output consists of observed trends in academic performance, interpretation of the findings in light of relevant literature, and implications for improving learning continuity and resilience during future crises.

2.3. Locale and Participants

The study was conducted at Maximino S. Laurete Sr. Central School, a public elementary school in the Philippines. The target participants were the Grade 6 students

enrolled during School Year 2024–2025. Academic records were drawn from the students' School Form 10, covering final grades from Grade 1 to Grade 5.

2.4. Data Collection Procedure

Before any data were collected, the researchers formally sought and obtained written approval from the school principal, the registrar, and the Grade 6 teacher-adviser. This permission allowed access to the relevant academic records needed for the study. Throughout the process, strict confidentiality measures were observed: all student information was anonymized, and the data were securely handled to ensure that no learner names or identifying details were disclosed.

The academic records collected for analysis were organized into three distinct periods reflecting the key phases of the pandemic's impact on schooling. The pre-pandemic phase included the students' final grades from Grade 1, representing their baseline performance during regular face-to-face instruction. The pandemic phase covered the abrupt shift to modular learning, with the students' final grades from Grades 2 and 3 combined to calculate an average for this period. Finally, the post-pandemic phase reflected the return to in-person classes and included the average of the students' final grades from Grades 4 and 5, when schools focused on resuming normal operations and addressing learning gaps through catch-up interventions.

2.5. Data Analysis

Descriptive statistics (means, medians, mean ranks) were computed to identify general trends in performance across the three periods. The Kruskal-Wallis H-Test was employed to test for significant differences among the grade clusters. If the test indicated significance, post hoc pairwise comparisons were recommended to pinpoint specific periods with meaningful differences.

2.6. Ethical Considerations

The study adhered to ethical standards for educational research. All records were anonymized, used solely for academic purposes, and presented in aggregate form to protect the identities of students. Permission letters and approval documents were filed with the school's administration prior to data collection.

2.7. Limitations of Scope

Because this study focused on a single public elementary school and one Grade 6 cohort, the findings should be interpreted with caution. They illustrate performance patterns within this specific school context but cannot be generalized to all Grade 6 learners in the Philippines. Nonetheless, the results provide valuable case-based evidence that contributes to the broader understanding of pandemic-related learning trends in Philippine basic education.

3. Results

This study analyzed the trends in academic performance of Grade 6 learners at Maximino S. Laurete Sr. Central School (MSLCS) across three phases: pre-pandemic, during the pandemic, and post-pandemic. The findings are organized by performance clusters — Satisfactory, Very Satisfactory, and Outstanding — following the school's grading scheme.

3.1. Academic Performance Trends

This presents the trends in academic performance across three performance clusters—Satisfactory, Very Satisfactory, and Outstanding—examined over the pre-pandemic, pandemic, and post-pandemic phases. By applying the Kruskal-Wallis H-test, the analysis investigates whether median grades varied significantly across grade levels and phases of learning delivery. The descriptive statistics highlight how learners' grades shifted during the transition from traditional classroom instruction to modular learning and later to the resumption of face-to-face classes. The results provide insight into how different groups of students were affected by these shifts, with some clusters showing significant variation across phases while others demonstrated consistent levels of achievement despite disruptions in the learning environment.

3.1.1. Satisfactory Performance Cluster

The performance trends for the Satisfactory cluster are illustrated in Figure 2, which presents the mean ranks and median grades across the pre-pandemic, pandemic, and post-pandemic phases.

Figure 2. *Mean Ranks and Median Grades for the Satisfactory Cluster Across Grade Levels*

Kruskal-Wallis Test: Grade versus Year

Descriptive Statistics

Year	N	Median	Mean Rank	Z-Value
1	7	84	16.1	-1.28
2	7	83	11.1	-2.46
3	7	85	20.5	-0.24
4	7	88	31.9	2.45
5	7	87	26.4	1.15
6	7	84	23.1	0.39
Overall	42		21.5	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	12.69	0.026
Adjusted for ties	5	12.85	0.025

The Kruskal-Wallis test revealed significant differences in grades within the satisfactory cluster across grade levels ($H = 12.85$, $df = 5$, $p = 0.025$). Median grades ranged

from 83 in Year 2 to 88 in Year 4, with mean ranks also lowest in Year 2 (11.1) and highest in Year 4 (31.9). These results indicate that performance in this cluster declined during the pandemic years (Years 2–3) but showed improvement in the post-pandemic recovery phase (Years 4–5) as face-to-face classes and support programs resumed.

For this cluster, the Kruskal-Wallis H-Test revealed a statistically significant difference in grades among the three phases. The computed H-value was 12.85 with an adjusted p-value of 0.025, which is below the standard 0.05 significance level. This result indicates that at least one phase's median grade differed meaningfully from the others, reflecting how performance shifted during modular learning and the subsequent recovery.

The descriptive trend shows that learners in this cluster generally experienced lower grades during the pandemic period (Grades 2–3) but showed improvement during the post-pandemic recovery (Grades 4–5) as face-to-face learning and intervention programs resumed.

3.1.2. Very Satisfactory Performance Cluster

The performance trends for the Very Satisfactory cluster are shown in Figure 3, which displays the mean ranks and median grades across the three phases.

Figure 3. *Mean Ranks and Median Grades for the Very Satisfactory Cluster Across Grade Levels*

Kruskal-Wallis Test: Grade versus Year

Descriptive Statistics

Year	N	Median	Mean Rank	Z-Value
1	14	88.0	55.3	2.15
2	14	87.0	44.0	0.26
3	14	84.0	30.8	-1.97
4	14	87.5	47.1	0.77
5	14	85.0	37.5	-0.83
6	14	86.0	40.3	-0.37
Overall	84		42.5	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	8.33	0.139
Adjusted for ties	5	8.46	0.132

The Kruskal-Wallis test was used to compare grades in the very satisfactory cluster across six year levels. Median grades ranged from 84.0 in Year 3 to 88.0 in Year 1, with mean ranks also lowest in Year 3 (30.8) and highest in Year 1 (55.3). Although descriptive results suggest stronger performance in Year 1 and relatively weaker outcomes in Year 3, the test

showed no statistically significant differences among groups (H = 8.46, df = 5, p = 0.132). This indicates that grade distributions within the very satisfactory cluster remained generally consistent across grade levels.

For this cluster, the Kruskal-Wallis test found no statistically significant difference in grades among the phases. The adjusted p-value was greater than 0.05, indicating that any small variations in median grades are likely due to random differences rather than systematic effects of the changing learning delivery.

This result suggests that many students in this group maintained consistent performance even during the transition to modular learning and the return to in-person classes.

3.1.3. Outstanding Performance Cluster

The performance trends for the Outstanding cluster are presented in Figure 4, which depicts the mean ranks and median grades for this group across the three phases.

Figure 4. *Mean Ranks and Median Grades for the Outstanding Cluster Across Grade Levels*

Kruskal-Wallis Test: Grade versus Year

Descriptive Statistics

Year	N	Median	Mean Rank	Z-Value
1	6	91.5	23.3	1.23
2	6	90.5	19.5	0.25
3	6	86.0	9.4	-2.31
4	6	90.5	13.6	-1.25
5	6	92.0	22.1	0.91
6	6	94.0	23.1	1.17
Overall	36		18.5	

Test

Null hypothesis	H_0: All medians are equal
Alternative hypothesis	H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	5	8.91	0.113
Adjusted for ties	5	9.08	0.106

The Kruskal-Wallis test was conducted to examine grade differences in the outstanding cluster across six year levels. Median grades ranged from 86.0 in Year 3 to 94.0 in Year 6, with mean ranks also lowest in Year 3 (9.4) and highest in Years 1 and 6 (23.3 and 23.1, respectively). Although the descriptive results point to weaker performance in Year 3 and stronger outcomes in Years 5 and 6, the test revealed no statistically significant differences (H = 9.08, df = 5, p = 0.106). These findings suggest that grade distributions in the outstanding cluster were largely consistent across grade levels.

The test showed no statistically significant difference for this cluster, with an adjusted p-value above 0.05. Although slight fluctuations were observed — with a minor dip during the pandemic — these changes were not statistically meaningful.

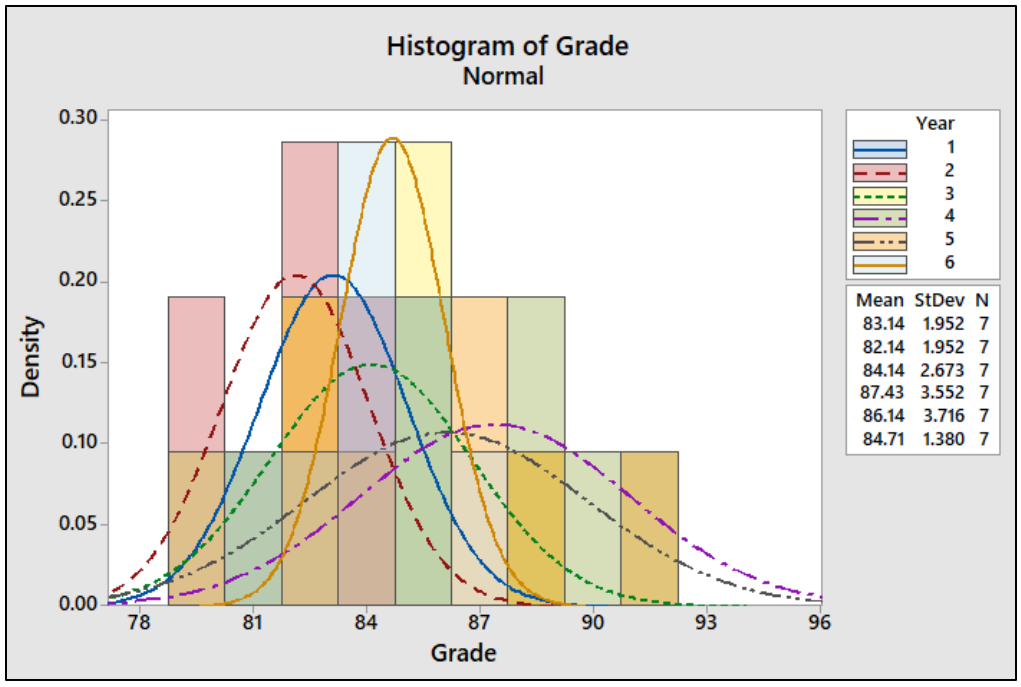
This finding indicates that students in the Outstanding cluster were largely able to sustain high levels of performance regardless of the changes in learning modalities.

3.2. Summary of Descriptive Statistics

To better visualize how grades were distributed within each performance cluster across the three phases, separate histograms are provided for the Satisfactory, Very Satisfactory, and Outstanding clusters.

For the Satisfactory cluster, Figure 5 shows a histogram of the number of learners falling within this band during the pre-pandemic, pandemic, and post-pandemic periods. This visual highlights the increase in students categorized as Satisfactory during the pandemic and the decline as performance recovered afterward.

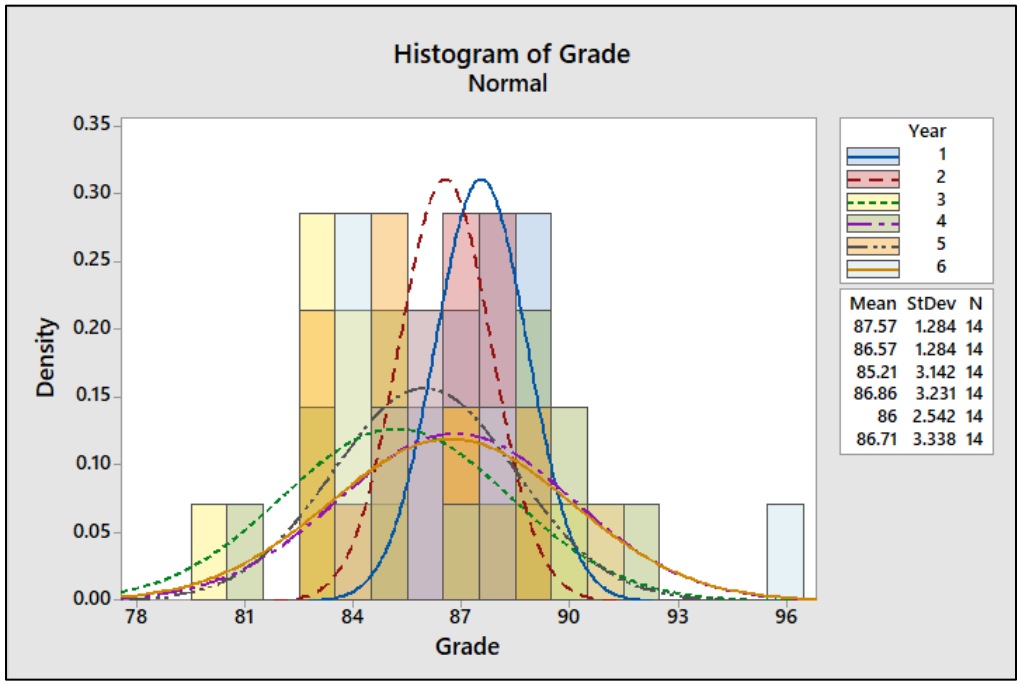
Figure 5. *Histogram of Final Grade Distribution for the Satisfactory Cluster Across Grade Levels*



The histogram on Figure 5 shows that grade distributions within the satisfactory cluster shifted across year levels. Lower means and wider spreads were observed in Years 2 and 3, reflecting weaker performance during the pandemic phase of modular learning. In contrast, Years 4 and 5 displayed higher means and more concentrated distributions, indicating recovery as face-to-face instruction resumed. Years 1 and 6 clustered closer to the overall average, suggesting stable but moderate performance. Overall, the distribution pattern highlights the impact of the pandemic on learner outcomes and the subsequent improvement during the post-pandemic recovery phase.

For the Very Satisfactory cluster, Figure 6 presents the histogram depicting the relative stability in the number of learners achieving this level of performance across the three phases.

Figure 6. *Histogram of Final Grade Distribution for the Very Satisfactory Cluster Across Three Phases*

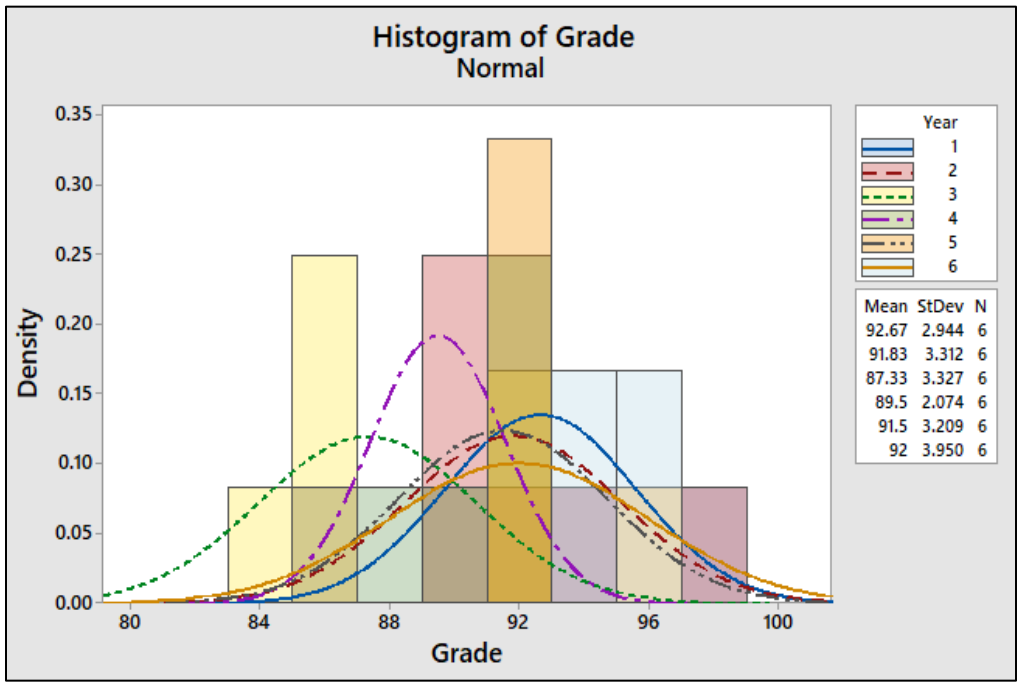


The histogram on Figure 6 shows that grade distributions in the very satisfactory cluster were closely clustered across all years. Mean grades ranged narrowly from 85.21 in Year 3 to 87.57 in Year 1, with similar levels of variability. These results indicate that students in this cluster maintained consistent performance across the pre-pandemic, pandemic, and post-pandemic phases, reflecting their relative stability despite shifts in learning modalities.

For the Outstanding cluster, Figure 7 displays the histogram highlighting the distribution of top-performing students in each phase. This figure shows that the number of learners in this highest cluster remained steady overall, despite minor fluctuations during the modular learning period.

The histogram on Figure 7 shows that the outstanding cluster consistently performed at the highest level, with mean grades ranging from 87.33 in Year 3 to 92.67 in Year 1. Although some variability was observed, grade distributions remained concentrated in the upper 80s to 90s. This indicates that students in this cluster sustained exceptional performance across all phases, demonstrating resilience and adaptability regardless of changes in learning modalities.

Figure 7. *Histogram of Final Grade Distribution for the Outstanding Cluster Across Three Phases*



Together, these cluster-specific histograms complement the earlier statistical results by showing how the learner counts in each band shifted during and after the pandemic. The histograms provide a clear visual summary of how performance levels shifted across the three phases. The three histograms (Figures 5, 6 & 7) show a clear progression of learner performance across the Satisfactory, Very Satisfactory, and Outstanding clusters. The Satisfactory group clustered around the low to mid-80s, with moderate variability reflecting modest but consistent outcomes. The Very Satisfactory cluster showed higher concentration in the mid-80s to high 80s, indicating more stable performance across phases. Meanwhile, the Outstanding cluster displayed the highest achievement, with means in the upper 80s to low 90s and generally sustained excellence despite some variability. Overall, the distributions highlight increasing consistency and achievement as learners move from satisfactory to outstanding levels, suggesting stable academic standing across clusters over time.

4. Discussion, Recommendations, and Conclusion

The results of this study provide insights into how the COVID-19 pandemic influenced the academic performance of Grade 6 learners at Maximino S. Laurete Sr. Central School (MSLCS) across three critical phases. The significant variation observed in the Satisfactory cluster supports findings from global and local studies showing that learners at the lower and middle performance levels were particularly vulnerable to sudden shifts in learning modalities and limited support structures (Dorn et al., 2020; Kuhfeld et al., 2022). The increased number of students in this band during the pandemic period reflects the challenges of modular distance learning, particularly for households with limited resources,

unstable connectivity, or unconducive study environments (Cajurao et al., 2023; Talimodao & Madrigal, 2021).

In contrast, the relative stability of the Very Satisfactory and Outstanding clusters aligns with previous research suggesting that higher-performing students, often equipped with self-regulation skills and stronger home support systems, were able to sustain their academic performance despite disruptions (Meinck et al., 2022; Zheng et al., 2022). Within the Input-Process-Output (IPO) framework (Richey et al., 2010), these results highlight how even limited inputs, such as printed modules and community involvement, were leveraged through school-level processes to generate outputs that reflected resilience.

From a policy perspective, these findings underscore the importance of equity-oriented interventions. While the ARAL Program and related initiatives represent a step forward in addressing pandemic learning losses, policymakers may need to refine these programs to ensure that the most vulnerable learners, those consistently clustered in the Satisfactory band, receive targeted, sustained, and context-sensitive support. National and local education policies may also prioritize integrating contingency planning into the school improvement process, establishing clear mechanisms for transitioning between modalities, and institutionalizing psychosocial support systems as part of crisis response. Strengthening teacher training on digital literacy, adaptive pedagogy, and learner well-being may also enhance preparedness for future disruptions.

At the school and community level, institutions may improve the accessibility and clarity of modular and hybrid materials, establish remediation programs for at-risk learners, and build stronger parent-school-community partnerships to sustain engagement. Monitoring and evaluation mechanisms combining quantitative performance data with qualitative learner feedback may be institutionalized to guide adjustments and ensure accountability.

It must also be noted, however, that this study relied solely on grade distributions as indicators of academic performance. While grades provide a useful snapshot of learner outcomes, they may mask variations in specific subject areas, skill competencies, or psychosocial factors that influence learning. Future research may adopt mixed methods, integrating standardized assessments, classroom observations, or learner interviews, to provide a more nuanced understanding of academic resilience and vulnerability during crises.

In conclusion, while the pandemic disrupted traditional learning, the trends among Grade 6 learners at MSLCS show that responsive interventions, adaptable teaching practices, and strong community support can mitigate setbacks. Strengthening equity-focused policies, embedding contingency planning in education systems, and addressing the limitations of grade-only analysis may enable schools and policymakers to build a more resilient and inclusive education system that safeguards both learning outcomes and learner well-being in times of crisis.

Acknowledgment

The researchers would like to express their sincere gratitude to the administration, teaching staff, and registrar of Maximino S. Laurete Sr. Central School for granting permission and providing access to the necessary academic records for this study. Special thanks are also extended to the Grade 6 teacher-adviser for their assistance during the data gathering process. The authors acknowledge the support of the learners' families and the broader school community, whose cooperation made this research possible.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this research paper.

References

1. Adedoyin, O. B., & Soykan, E. (2020). COVID-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments, 28*(7), 1–13. https://doi.org/10.1080/10494820.2020.1813180
2. Allen, T., Whitlock, D., & Hood, J. (2024). Teaching in the Post-Pandemic Classroom. *Research Issues in Contemporary Education, 9*(3), 113-139. https://files.eric.ed.gov/fulltext/EJ1463027.pdf
3. *Academic Recovery and Accessible Learning (ARAL) Program Act, Republic Act No. 12028* (2024). https://www.deped.gov.ph/wp-content/uploads/IRR_R.A.-12028_ARAL-ACT.pdf
4. Bertoletti, A., & Karpiński, Z. (2024). Investigating the effect of COVID-19 disruption in education using REDS data. *Large-scale Assessments in Education, 12*. https://doi.org/10.1186/s40536-024-00195-x
5. Cajurao, E. C., Mortel, J. C. V., Maglente, M. S. C., Dumaguin, J. R., Paloma, V. V., Rios, C. R., & Rivas, M. A. D. (2023). Modular distance learning: Perceived challenges and strategies of secondary science teachers in Mandaon District, Masbate, Philippines. *International Journal of Multidisciplinary: Applied Business and Education Research, 4*(6), 2023–2037. https://doi.org/10.11594/ijmaber.04.06.27
6. Cortés-Albornoz, M. C., Ramírez-Guerrero, S., García-Guáqueta, D. P., Vélez-Van-Meerbeke, A., & Talero-Gutiérrez, C. (2023). Effects of remote learning during COVID-19 lockdown on children's learning abilities and school performance: A systematic review. *International journal of educational development, 101*, 102835. https://doi.org/10.1016/j.ijedudev.2023.102835
7. Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2020). COVID-19 and learning loss—Disparities grow and students need help. *McKinsey & Company*.

https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-learning-loss-disparities-grow-and-students-need-help

8. Engzell, P., Frey, A., & Verhagen, M. D. (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proceedings of the National Academy of Sciences, 118*(17), e2022376118. https://doi.org/10.1073/pnas.2022376118
9. Hernando-Malipot, M. (2022, August 14). DepEd reiterates commitment to address 'learning loss' during the pandemic. *Manila Bulletin*. https://mb.com.ph/2022/8/14/deped-reiterates-commitment-to-address-learning-loss-during-the-pandemic
10. Kuhfeld, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E., & Liu, J. (2022). Projecting the potential impact of COVID-19 school closures on academic achievement. *Educational Researcher, 49*(8), 549–565. https://doi.org/10.3102/0013189X20965918
11. Kuhfeld, M., & Tarasawa, B. (2020). The COVID-19 slide: What summer learning loss can tell us about the potential impact of school closures on student academic achievement. *The Collaborative for Student Growth Research Brief*. https://www.nwea.org/uploads/2020/04/Collaborative-Brief_Covid19-Slide-APR20.pdf
12. Lu, B. J. (2024, October 28). Literacy important for PH development. *Philippine News Agency*. https://www.pna.gov.ph/opinion/pieces/962-literacy-important-for-ph-development
13. Meinck, S., Fraillon, J., & Strietholt, R. (2022). *The impact of the COVID-19 pandemic on education*: *international evidence from the Responses to Educational Disruption Survey (REDS)*. Unesco.org. https://unesdoc.unesco.org/ark:/48223/pf0000380398
14. Richey, R. C., Klein, J. D., & Tracey, M. W. (2010). *The Instructional Design Knowledge Base*: *Theory, Research, and Practice*. Routledge. https://doi.org/10.4324/9780203840986
15. Sing Yun, W. (2023). Digitalization challenges in education during COVID-19: A systematic review. *Cogent Education, 10*(1). https://doi.org/10.1080/2331186X.2023.2198981
16. Tadesse, S., & Muluye, W. (2020). The Impact of COVID-19 Pandemic on Education System in Developing Countries: A Review. *Open Journal of Social Sciences, 08*(10), 159–170. https://doi.org/10.4236/jss.2020.810011
17. Talimodao, A. J. S., & Madrigal, D. V. (2021). Printed Modular Distance Learning in Philippine Public Elementary Schools in Time of COVID-19 Pandemic: Quality, Implementation, and Challenges. *Philippine Social Science Journal, 4*(3), 19-29. https://doi.org/10.52006/main.v4i3.391
18. World Bank. (2022). *The State of Global Learning Poverty*: *2022 Update*. https://thedocs.worldbank.org/en/doc/e52f55322528903b27f1b7e61238e416-0200022022/original/Learning-poverty-report-2022-06-21-final-V7-0-conferenceEdition.pdf
19. Zheng, X., Zhang, D., Lau, E. N. S., Xu, Z., Zhang, Z., Mo, P. K. H., Yang, X., Mak, E. C. W., & Wong, S. Y. S. (2022). Primary School Students' Online Learning During Coronavirus Disease 2019: Factors Associated With Satisfaction, Perceived Effectiveness, and Preference. *Frontiers in Psychology, 13*. https://doi.org/10.3389/fpsyg.2022.784826

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**
DOI: **10.5281/zenodo.16930487**

Global Practices and TESDABest 8-Point Agenda: Evaluating 21st Century Readiness in Philippine TVET Vis-à-vis Global Context

Vaniza B. Cambonga & Liezl Marie B. Dagondon
Northwestern Mindanao State College of Science and Technology, *Philippines*

Abstract

Technical and Vocational Education and Training (TVET) has become a cornerstone of global workforce strategies, with countries like Singapore, Australia, and the United Kingdom embedding 21st-century skills into their systems through strong industry linkages, competency-based assessments, and dual training modalities. In the Philippines, the Technical Education and Skills Development Authority (TESDA) has advanced reforms through the TESDABest 8-Point Agenda, but questions remain on how closely these priorities align with international benchmarks. This study employed a comparative-descriptive design, anchored in Human Capital Theory and the P21 framework, and used desktop research drawing from government reports, policy documents, peer-reviewed literature, and international datasets (ILO, OECD, Cedefop, ASQA, SSG). Findings show that Philippine TVET demonstrates alignment with global practices in areas such as competency-based training, industry partnerships, and expanded access, but lags in wage competitiveness, resource adequacy, digital skills integration, and systematic quality assurance. High-performing systems emphasized employer-co-designed curricula, flexible learning pathways, micro-credentials, and robust funding models. The study concludes that embedding P21 competencies across all programs, enhancing trainer professional development, and adopting global innovations may strengthen TESDA's reforms. Aligning these with Sustainable Development Goals 4 and 8 could improve employability outcomes, equity, and the Philippines' competitiveness in the global skills landscape.

Keywords: TVET, TESDA, TESDABest 8-Point Agenda, 21st century learning, P21 Framework, Philippines

Recommended Citation:

Cambonga, V. B., & Dagondon, L. M. B. (2025). Global Practices and TESDABest 8-Point Agenda: Evaluating 21st Century Readiness in Philippine TVET Vis-à-vis Global Context. *Ennoia Advances in Social Science, Technology and Education, 01*(02), 99-122. https://doi.org/10.5281/zenodo.16930487

(Cambonga & Dagondon, 2025)

Correspondence[‡‡]

[‡‡]*For correspondence regarding this article*:
VANIZA B. CAMBONGA
Instructor I
Technical Skills and Skills Development Authority - Salvador Trade School
Poblacion Salvador, Lanao del Norte, PHILIPPINES 9212
vbcambonga@tesda.gov.ph

1. Introduction

The transformation of labor markets driven by digitalization, automation, and globalization has heightened the demand for competencies that extend beyond technical expertise. Employers increasingly prioritize cognitive, interpersonal, and intrapersonal skills such as critical thinking, problem-solving, teamwork, adaptability, and lifelong learning that enhance workforce readiness (van Laar et al., 2018; National Research Council, 2012). In response, global TVET systems in countries such as Singapore, Australia, and the United Kingdom have embedded these "work-ready" competencies into curricula, assessments, and delivery models, ensuring alignment with the evolving demands of the 21st-century workplace (The Times, 2023). Common strategies include strong industry linkages, dual training systems, and competency-based education, which together prepare graduates for both current and future labor market needs.

In the Philippines, Technical and Vocational Education and Training (TVET) plays a strategic role in workforce development and poverty reduction. The Technical Education and Skills Development Authority (TESDA) reported that employment rates among TVET graduates reached 84.72% in 2021, largely due to active industry partnerships and enterprise-based training modalities (TESDA, 2022; Arayata, 2022). Yet, structural challenges persist. Generalao et al. (2025a) found that while TVET participation can increase labor force engagement, it does not consistently improve employment quality or access. Similarly, a Philippine Institute for Development Studies (PIDS) report (Generalao et al., 2025b) revealed no significant wage premium for TVET graduates overall, with wage advantages limited to those with sub-secondary education. Post-secondary TVET graduates in some cases earn less than academic pathway counterparts, pointing to a possible misalignment between training outputs and labor market demands.

Additional barriers include outdated facilities, insufficient trainer capacity, and limited integration of soft skills development, especially for disadvantaged youth and those not in education, employment, or training (NEET) (Orbeta & Corpus, 2024). These persistent gaps underscore the need for a strategic reorientation of Philippine TVET policies and programs to align with both the Partnership for 21st Century Learning (P21) framework and global best practices, ensuring graduates are equipped with the full range of skills demanded by modern labor markets.

Global comparisons highlight that high-performing TVET systems not only integrate 21st-century skills into their curricula but also strengthen employment outcomes through co-designed programs with industry, robust competency-based assessments, and extensive work-based learning opportunities. While the Philippines demonstrates notable successes, mixed results in employment and wage differentials point to the need for comprehensive reforms in curriculum integration, industry engagement, and assessment standards to ensure competitiveness in an increasingly technology-driven global economy.

This study is anchored in Human Capital Theory and the P21 framework, providing a dual lens for examining Philippine and global TVET readiness. Human Capital Theory emphasizes the role of investments in education and skills development in boosting

productivity, employability, and economic returns (Becker, 1994). The P21 framework, endorsed by UNESCO and other global education bodies, outlines the essential competencies for thriving in knowledge-based economies, including learning and innovation skills, digital literacy, and life and career skills (Battelle for Kids, 2019). Together, these frameworks enable a comprehensive analysis that considers both tangible labor market outcomes and the broader skill sets required for long-term adaptability.

The Philippine TVET system, under TESDA's leadership, seeks to address these imperatives through the TESDABest 8-Point Agenda, which prioritizes modernization of training delivery, enhanced industry partnerships, flexible and inclusive learning modalities, global competitiveness, integration of digital skills, and alignment with lifelong learning pathways (TESDA, 2024). These reform priorities align closely with P21 competencies, offering an opportunity to bridge the gap between technical skills and higher-order capabilities such as creativity, critical thinking, adaptability, and collaboration.

Despite the rich body of global research on TVET reforms and the growing policy literature in the Philippines, there remains a scarcity of comparative studies that directly situate the Philippine experience within the context of international best practices. Most local research has focused on implementation outcomes, employability measures, or challenges in access and delivery (Generalao et al., 2025a; Orbeta & Corpus, 2024), while overlooking systematic analyses of how Philippine TVET strategies converge with or diverge from global models such as those in Singapore, Australia, and the United Kingdom. This lack of comparative evaluation limits the ability of policymakers and institutions to identify which reform elements are uniquely effective in the Philippine context and which require recalibration to align with global benchmarks.

By comparing Philippine TVET outcomes with global benchmarks, this study aims to furnish TESDA and TVET institutions with evidence-based strategies for refining national competency standards, improving resource adequacy, and expanding work-based learning. In doing so, it advances TVET's role in supporting the Sustainable Development Goals particularly SDG 4 on quality education and SDG 8 on decent work while strengthening its contribution to economic growth, social equity, and sustainable national development.

2. Methods

2.1. Research Design

This study employed a comparative-descriptive research design utilizing desktop research methods to address the aims stated in Global TVET Practices and the TESDABest 8-Point Agenda: aligning curriculum integration, industry linkages, competency-based assessments, and work-based learning for enhanced employment and skills development in the Philippines. The design facilitated a systematic comparison of the Philippine Technical and Vocational Education and Training (TVET) system with selected high-performing global contexts, specifically Singapore and Australia. The purpose was to identify convergences, divergences, and transferable best practices in embedding 21st-century competencies into TVET programs.

Data sources included quantitative and qualitative evidence from government reports, policy documents, and peer-reviewed academic studies. These were analyzed to examine structure, content, delivery, and outcome indicators of TVET systems across contexts. The comparative-descriptive approach was chosen because it allowed for a nuanced analysis of multiple cases within their cultural and policy environments (Creswell & Creswell, 2018), while aligning with the Partnership for 21st Century Learning (P21) framework, which emphasizes critical thinking, communication, collaboration, creativity, and digital literacy as foundational to workforce readiness (Battelle for Kids, 2019).

Philippine TVET performance was assessed using indicators such as employment rates, wage premiums, employer satisfaction, and skills alignment, based on data from the Technical Education and Skills Development Authority (TESDA) annual reports, the Philippine Institute for Development Studies (PIDS), and national labor market surveys. International benchmarks were drawn from global datasets, government publications, and policy reviews from SkillsFuture Singapore (SSG), the Australian Skills Quality Authority (ASQA), the European Centre for the Development of Vocational Training (Cedefop), and other recognized TVET authorities.

The analysis was anchored on Human Capital Theory (Becker, 1994), which posits that investments in education and training generate measurable economic returns through higher productivity, employability, and wages. It also drew from the TESDABest Reform and Development Agenda (TESDA, 2024), which underscores modernization, industry integration, and global competitiveness. Furthermore, findings were mapped against the Sustainable Development Goals particularly SDG 4 (Quality Education) and SDG 8 (Decent Work and Economic Growth) to situate recommendations within global development priorities (United Nations, 2015).

The outcome of this research was a synthesized comparative analysis that identifies critical gaps, highlights strengths, and offers actionable recommendations for TESDA and Philippine TVET institutions to strengthen 21st-century skills integration, deepen industry linkages, improve competency-based assessments, and enhance work-based learning modalities for improved labor market alignment.

2.2. Data Collection and Analysis

Data were collected through secondary data analysis of a wide range of existing documents, reports, datasets, and scholarly publications sourced from credible, verifiable, and authoritative sources. This approach ensured that the study was grounded in accurate, up-to-date, and methodologically sound evidence while allowing for both national and international comparisons.

This study adopted a comparative qualitative-quantitative synthesis to examine the integration of 21st-century competencies in Technical and Vocational Education and Training (TVET) systems across multiple world regions. Data were collected entirely through secondary analysis of existing documents, reports, and datasets from authoritative, verifiable sources. These included government and intergovernmental reports such as the Technical Education and Skills Development Authority (TESDA) annual reports, the Philippine

Development Plan, SkillsFuture Singapore (SSG) publications, Australian Skills Quality Authority (ASQA) evaluations, and European Centre for the Development of Vocational Training (Cedefop) studies. Peer-reviewed literature was accessed through databases such as Google Scholar, Scopus, and ResearchGate, while quantitative labor and education data were drawn from the International Labour Organization (ILO) and the Organisation for Economic Co-operation and Development (OECD). Additionally, policy briefs and analytical reports from institutions such as the Philippine Institute for Development Studies (PIDS), the World Bank, and UNESCO-UNEVOC informed the policy context.

Inclusion criteria were applied to ensure both the relevance and reliability of the sources. First, only materials directly addressing TVET, graduate employability, skills frameworks or labor market outcomes were considered. Second, literature and datasets were drawn from diverse regions around the globe to provide a comprehensive cross-regional benchmark. Third, sources were limited to those published between 2013 and 2025 to ensure contemporary relevance, except for seminal works like Becker's Human Capital Theory (1994), which were included for theoretical grounding. Fourth, preference was given to peer-reviewed publications and official institutional reports; non-peer-reviewed materials were included only if issued by credible organizations with verifiable methodologies. Fifth, for datasets, only standardized metrics, such as employment rates, wage differentials, and skill proficiency measures, were used to facilitate meaningful cross-country comparisons. Finally, all sources were either in English or had verified English translations to ensure accuracy of interpretation. Table 1 summarizes the inclusion criteria applied in this study.

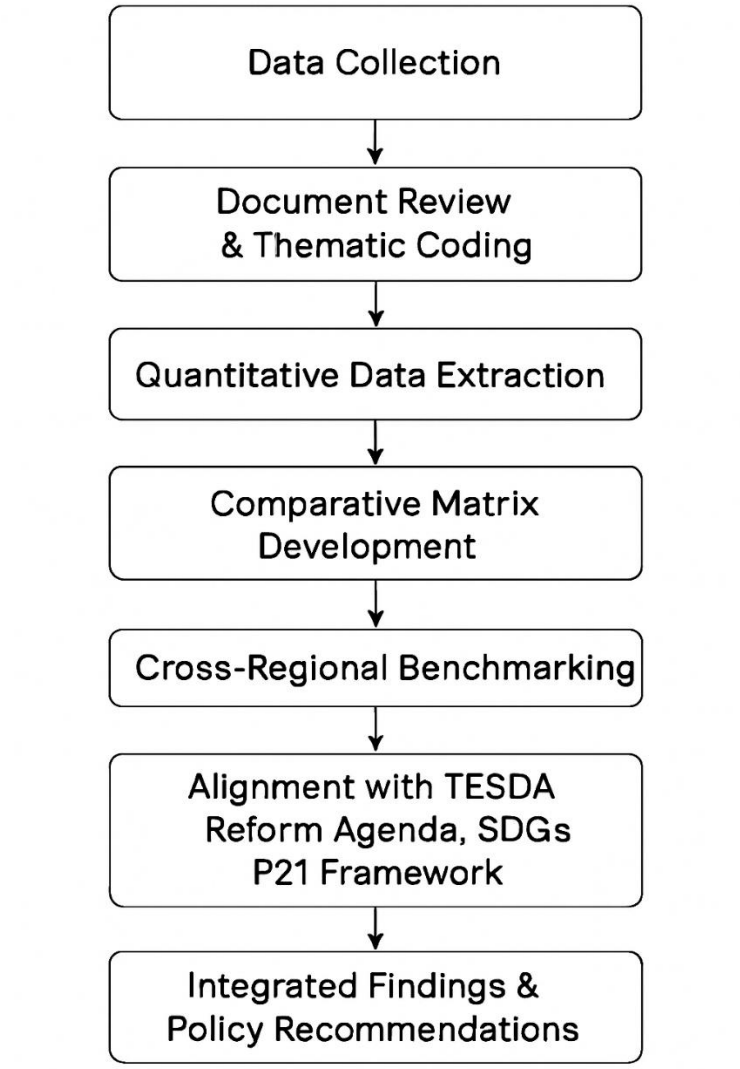
Table 1. *Inclusion Criteria for Secondary Data Sources*

Criterion	Specification
Thematic Relevance	TVET systems, employability outcomes, skills integration, or labor market alignment
Geographical Scope	Philippines, various regions around the globe
Publication Date	2013–2025 (with exceptions for foundational theories)
Source Credibility	Peer-reviewed, official government, or recognized institutional reports
Indicator Comparability	Standardized measures (e.g., employment rates, wage premiums, skill levels)
Language	English or verified translation

Data analysis proceeded in three interlinked phases. First, a document review and thematic coding was conducted, guided by the Human Capital Theory and P21 framework. Coding categories included curriculum integration of 21st-century skills, industry linkages, competency-based assessments, work-based learning modalities, and resource adequacy. Second, quantitative indicators such as employment rates, wage differentials, and training

participation rates were extracted from global datasets (ILO, OECD, TESDA, SkillsFuture, Cedefop) and entered into a comparative matrix. This matrix enabled side-by-side benchmarking between the Philippines and selected high-performing TVET systems. Third, a cross-regional comparative analysis was undertaken, differentiating patterns of success between high-income and middle-income contexts while identifying transferable practices relevant to the Philippine TVET landscape. Figure 1 illustrates the analytical process applied in this study, showing the integration of qualitative and quantitative data streams.

Figure 1. *Analytical Process for Comparative TVET Study*


Data Collection
Document Review & Thematic Coding
Quantitative Data Extraction
Comparative Matrix Development
Cross-Regional Benchmarking
Alignment with TESDA Reform Agenda, SDGs P21 Framework
Integrated Findings & Policy Recommendations

A final stage of analysis involved aligning the Philippine TVET outcomes with the TESDA Reform and Development Agenda (2024–2028), Sustainable Development Goal 4 (Quality Education), and the P21 competencies. This alignment enabled a dual assessment: first, determining the structural and competency-based strengths of the Philippine system; second, identifying strategic gaps where global best practices could be adapted to improve employability and workforce readiness. By combining economic, pedagogical, and

competency-oriented perspectives, the methodology ensured that the study's findings were both evidence-based and policy-relevant.

3. Results and Discussion

This section presents the key findings of the study and interprets them in relation to existing literature and global best practices in Technical and Vocational Education and Training (TVET). The results highlighted patterns, strengths, and gaps in the current Philippine TVET landscape, with particular attention to how the TESDABest 8-Point Agenda aligns with internationally recognized approaches in curriculum integration of 21st-century skills, industry linkages, competency-based assessments, work-based learning modalities, and resource adequacy. Through a comparative lens, the discussion situated these findings within broader international trends, drawing connections between local reforms and global insights on TVET quality, skills development, and labor-market outcomes.

3.1. Curriculum Integration of 21st-Century Skills in Global TVET Systems

Globally, TVET systems are increasingly embedding 21st-century skills into their curricula to meet the evolving demands of modern workplaces. These skills, such as critical thinking, communication, collaboration, digital literacy, and adaptability, are now considered essential alongside traditional technical competencies.

In Australia, the integration of employability skills into vocational education was emphasized as a response to technological disruption and labor market shifts. Griffin (2020) highlights the need for TVET to go beyond technical training by embedding problem-solving, teamwork, and digital fluency into programs to ensure workforce readiness. Similarly, Indonesia had identified communication, emotional intelligence, and lifelong learning as critical skills for bridging the gap between academic qualifications and workplace expectations. Studies showed that employers value personal attributes as much as technical expertise, especially in the context of Industry 4.0 (Nugraha et al., 2020; Suarta et al., 2017).

However, in South Africa, employer feedback revealed a disconnect between graduate capabilities and workplace needs. Akoobhai (2023) recommended curriculum reforms that integrate foundational and soft skills, suggesting that TVET colleges must collaborate more closely with industry to ensure relevance.

Malaysia had taken proactive steps by promoting digital readiness and innovation through national TVET initiatives. The integration of ICT and entrepreneurship into the curriculum reflected a broader shift toward preparing students for tech-driven economies (Halik Bassah & Noor, 2023; Rosli et al., 2024). Additionally, Nigeria advocated for the infusion of ICT into TVET to enhance global competitiveness. The integration of digital skills was seen as vital for preparing graduates for the demands of a modern labor market (Olusola, 2019). In the USA, competency-based education models were being adopted to certify skills like adaptability, emotional intelligence, and data literacy. These models aimed to ensure that graduates possess not just knowledge, but demonstrable capabilities aligned with employer expectations (Poirier & Remsen, 2017).

Furthermore, UNESCO-UNEVOC (2013) and the Commonwealth Secretariat (2013) supported these efforts by promoting frameworks that embed sustainability, innovation, and lifelong learning into TVET curricula. Their global initiatives encouraged countries to adopt inclusive and future-oriented educational strategies.

3.2. Industry Linkages in Global TVET Systems

A defining feature of effective Technical and Vocational Education and Training (TVET) systems worldwide is the strength of their linkages with industry. These partnerships are essential not only for ensuring curriculum relevance but also for enhancing graduate employability and institutional responsiveness to labor market dynamics. As global economies evolve, so too must the collaboration between TVET institutions and employers.

To begin with, Australia exemplified a demand-driven model where industry engagement is embedded in the design and delivery of vocational education. According to Griffin (2020), employer partnerships were instrumental in shaping competency standards and training packages, thereby aligning educational outcomes with real-world job requirements. Similarly, in South Africa, employer feedback had become a catalyst for curriculum reform. Akoobhai (2023) reports that many employers perceive a gap in soft skills and practical readiness among TVET graduates. In response, the government had initiated efforts to strengthen collaboration between colleges and industry, including mechanisms such as work-based learning and joint curriculum development. Moving to Malaysia, industry linkages were actively cultivated through national strategies and stakeholder engagement. For instance, Halik Bassah and Noor (2023) emphasized that employers play a critical role in identifying the employability skills most needed in graduates—such as communication, teamwork, and digital literacy. Furthermore, Rosli et al. (2024) highlighted how technical universities are aligning their programs with the digital economy by involving industry experts in curriculum planning and student assessment.

In contrast, Nigeria continued to face challenges in aligning TVET with industry expectations. As Olusola (2019) notes, limited collaboration and outdated training models hindered the system's ability to meet labor market demands. To address this, the study recommended structured partnerships between training institutions and employers, particularly in technical fields like electrical installation.

Meanwhile, Indonesia had made strides in integrating industry into the educational process. Nugraha et al. (2020) underscored the importance of employer involvement in curriculum design and internship programs, which are seen as vital for developing workplace-relevant skills. In the United States, the model of competency-based education further illustrated the value of industry collaboration. Poirier and Remsen (2017) described how partnerships with employers help define learning outcomes and assessment criteria, ensuring that students acquire skills that are directly applicable in the workforce.

On a broader scale, international organizations such as UNESCO-UNEVOC (2013) and the Commonwealth Secretariat (2013) advocate for robust industry-TVET collaboration as a pillar of educational reform. These organizations argued that such linkages not only improve employability but also foster innovation, entrepreneurship, and lifelong learning. While the

nature and maturity of industry linkages vary across countries, the global consensus is clear: sustained collaboration between TVET institutions and employers is indispensable for producing graduates who are ready to thrive in 21st-century work environments.

3.3. Competency-Based Assessments in Global TVET Systems

Competency-based assessment (CBA) has emerged as a cornerstone of modern Technical and Vocational Education and Training (TVET) systems worldwide. Unlike traditional assessment models that emphasize theoretical knowledge and standardized testing, CBAs focus on the demonstration of practical skills, behaviors, and knowledge that are directly aligned with occupational standards. This approach ensures that learners are not only educated but also demonstrably competent in performing tasks required in real-world work environments. At its core, CBA is designed to validate whether a learner can apply what they have learned in authentic contexts. This is particularly relevant in the 21st-century labor market, where employers increasingly demand job-ready graduates who can adapt to complex, technology-driven workplaces. As such, CBAs are often performance-based, involving simulations, workplace assessments, portfolios, and direct observation of skills.

In Australia, the TVET system had long embraced competency-based training and assessment. According to Griffin (2020), the Australian Qualifications Framework (AQF) is structured around competency standards developed in consultation with industry. This ensures that assessments are aligned with the expectations of employers and that qualifications reflect actual job performance. Similarly, in South Africa, the need for more authentic and workplace-relevant assessments had been highlighted in employer feedback. Akoobhai (2023) noted that employers value graduates who can demonstrate soft skills and job-specific competencies, prompting calls for assessment reforms that go beyond written exams to include practical demonstrations and industry-based evaluations.

In Malaysia, competency-based assessment is gaining traction as part of the country's broader TVET transformation agenda. Rosli et al. (2024) emphasized the importance of aligning assessments with digital economy readiness, noting that technical universities are increasingly using project-based evaluations and industry-validated rubrics to assess student performance. Indonesia and Nigeria also recognized the value of CBAs in bridging the gap between education and employment. Nugraha et al. (2020) advocated for integrating industry participation in assessment processes, while Olusola (2019) recommended the use of workplace-based assessments to ensure that graduates meet occupational standards. Moreover, in the United States, competency-based education (CBE) models were closely tied to assessment practices. Poirier and Remsen (2017) described how CBE frameworks rely on clearly defined learning outcomes and performance benchmarks, allowing students to progress upon mastery rather than time spent in class. This model supported personalized learning and ensured that credentials reflect actual capabilities.

Internationally, organizations such as UNESCO-UNEVOC (2013) and the Commonwealth Secretariat (2013) advocate for the adoption of CBAs as a means to improve the quality and relevance of TVET. They argued that competency-based systems enhance transparency, mobility, and employability by making learning outcomes explicit and

measurable. Generally, competency-based assessments are reshaping how TVET systems evaluate learning. By focusing on demonstrable skills and aligning assessments with industry standards, CBAs ensure that graduates are not only qualified on paper but also capable in practice—an essential requirement for success in the 21st-century workforce.

3.4. Work-Based Learning Modalities in Global TVET Systems

Work-based learning (WBL) has become a defining feature of modern Technical and Vocational Education and Training (TVET) systems, offering learners the opportunity to acquire practical experience in real-world settings. These modalities bridge the gap between classroom instruction and workplace demands, ensuring that graduates are not only knowledgeable but also job-ready. Globally, WBL is implemented through various models such as apprenticeships, internships, cooperative education, and dual training systems.

To begin with, Germany and Switzerland are widely recognized for their dual training systems, where students split their time between vocational schools and paid apprenticeships in companies. This model ensures a seamless integration of theory and practice, resulting in high employment rates and strong employer satisfaction (Deissinger & Gonon, 2021). In Australia, WBL was embedded in the national training framework through structured apprenticeships and traineeships. According to Griffin (2020), these programs were developed in close collaboration with industry partners, ensuring that learners gain hands-on experience aligned with national competency standards.

Additionally, South Africa had also prioritized WBL as a strategy to improve graduate employability. Akoobhai (2023) noted that employers advocate for more workplace exposure during training, prompting the Department of Higher Education and Training to promote learnerships and industry placements as part of the TVET curriculum. While in Malaysia, WBL was increasingly integrated into technical university programs. Rosli et al. (2024) highlighted that industrial training and final-year projects conducted in collaboration with companies are essential components of TVET education. These experiences not only enhanced technical skills but also foster soft skills such as communication, teamwork, and problem-solving.

Furthermore, Indonesia and Nigeria were also advancing WBL initiatives, though challenges remain. Nugraha et al. (2020) emphasized the importance of industry involvement in internship programs to ensure relevance and quality. Meanwhile, Olusola (2019) recommended expanding workplace-based assessments and structured attachments to address the persistent skills mismatch in Nigeria's TVET system. Similarly, in the United States, work-based learning is a key element of competency-based education models. Poirier and Remsen (2017) described how partnerships with employers facilitate internships, project-based learning, and mentorships that are directly tied to learning outcomes and performance assessments.

Internationally, organizations such as UNESCO-UNEVOC (2013) and the Commonwealth Secretariat (2013) advocated for the institutionalization of WBL across all levels of TVET. They argued that such modalities not only enhance employability but also promote lifelong learning, innovation, and smoother school-to-work transitions. Thus, work-

based learning modalities are essential for aligning TVET with labor market needs. By embedding real-world experience into the learning process, WBL ensures that graduates are equipped with the practical skills, professional behaviors, and confidence required to succeed in 21st-century workplaces.

3.5. Resource Adequacy in Global TVET Systems

Resource adequacy is a critical determinant of the quality and effectiveness of Technical and Vocational Education and Training (TVET) systems. It encompasses the availability and sufficiency of physical infrastructure, instructional materials, qualified personnel, and financial support necessary to deliver relevant and high-quality vocational education. Around the globe, disparities in resource allocation significantly influence the capacity of TVET institutions to meet 21st-century workforce demands.

In many low- and middle-income countries, resource constraints remained a persistent challenge. The Commonwealth Secretariat (2013) highlighted that in countries such as The Gambia, Kenya, and Papua New Guinea, TVET institutions often operate with outdated equipment, overcrowded classrooms, and insufficient teaching staff. These limitations hindered the delivery of practical training and reduce the employability of graduates. Similarly, in Nigeria, Olusola (2019) identified a significant skills gap linked to inadequate facilities and underfunded programs. The study emphasized that without modern tools and industry-standard equipment, students are unable to acquire the competencies required in contemporary workplaces. It recommended increased investment in infrastructure and the establishment of public-private partnerships to bridge the resource gap. In South Africa, while the government had made strides in expanding access to TVET, resource disparities between urban and rural colleges persisted. Akoobhai (2023) noted that many institutions lacked the tools and materials needed to implement competency-based training effectively. Employers also reported that graduates often lacked hands-on experience due to limited exposure to real-world equipment and environments.

On the other hand, Malaysia had demonstrated a more proactive approach to resource adequacy. Rosli et al. (2024) described how technical universities are equipped with advanced laboratories and digital tools to support training in emerging fields such as automation and data analytics. This investment was part of a broader national strategy to align TVET with the digital economy and Industry 4.0.

Indonesia faced similar challenges to other developing nations, but efforts are underway to improve resource allocation. Nugraha et al. (2020) advocated for increased government funding and stronger industry collaboration to ensure that training facilities reflect current technological standards. Meanwhile in Australia, resource adequacy was addressed through a demand-driven funding model that allocated resources based on labor market needs. Griffin (2020) explained that this model allows for greater flexibility and responsiveness, ensuring that institutions could invest in relevant technologies and upskill trainers accordingly.

UNESCO-UNEVOC (2013) stressed that resource adequacy is not merely about quantity but also about strategic alignment. Resources must be targeted toward priority

sectors, emerging technologies, and inclusive access to ensure that TVET systems are both equitable and future-ready. While resource adequacy varies widely across countries, its importance is universally acknowledged. Adequate and well-targeted resources are essential for delivering high-quality, industry-relevant training that prepares learners for the demands of the 21st-century workforce.

3.6. Integrating 21st-Century Skills, Industry Linkages, Competency-Based Assessments, Work-Based Learning, and Resource Adequacy in Philippine Context

The Philippine TVET system had made notable progress in embedding 21st-century skills into its curriculum. Spearheaded by the Technical Education and Skills Development Authority (TESDA), these reforms aimed to align training regulations with global competencies and industry standards. As noted by the Asian Development Bank (2021), the curriculum now emphasizes not only technical proficiency but also soft skills such as communication, critical thinking, and adaptability. In addition, Oliquino (2019) underscored that students in TVET institutions are increasingly exposed to digital literacy, collaboration, and problem-solving—skills that are indispensable in the context of Industry 4.0. Nevertheless, despite these advancements, disparities in implementation remained, particularly in regions with limited access to modern instructional resources.

Building on curriculum reforms, the Philippine TVET system had also strengthened its industry linkages. TESDA institutionalized mechanisms such as Industry Boards and TESDA Industry Consultative Committees (TICCs), which facilitated regular dialogue between training providers and employers (Asian Development Bank, 2021). These partnerships were crucial in ensuring that training programs remained responsive to labor market demands. Furthermore, Mariano and Tantoco (2023) emphasized that employers highly value graduates who have undergone industry immersion and on-the-job training. These experiences help bridge the gap between theoretical knowledge and workplace expectations, reinforcing the importance of sustained collaboration between TVET institutions and industry stakeholders.

Complementing industry linkages is the implementation of competency-based assessments. TESDA's National Certification (NC) system evaluates learners based on their ability to perform tasks to industry-defined standards. According to Content Admin (2024), TESDA achieved a 93% certification rate among assessed graduates in 2023, demonstrating the effectiveness of this approach. Moreover, Vinluan (2023) highlighted that competency-based assessments in caregiving programs go beyond technical evaluation to include behavioral and attitudinal readiness. This holistic approach ensures that graduates are not only skilled but also prepared for the interpersonal and emotional demands of the workplace.

In parallel with assessment reforms, work-based learning (WBL) has gained traction as a key modality in Philippine TVET. Programs such as the Dual Training System (DTS) and Apprenticeship allowed learners to alternate between classroom instruction and supervised work experience, thereby enhancing their practical skills and workplace adaptability (Asian Development Bank, 2021). Additionally, Essuman and Fraikue (2024) argued that balancing

theoretical instruction with hands-on training is essential, especially in fields like hospitality management. Their findings suggested that WBL significantly improves job readiness and industry satisfaction with TVET graduates.

The success of these initiatives hinged on resource adequacy. While TESDA had expanded its reach and modernized some facilities, gaps in infrastructure, equipment, and trainer qualifications persisted (Asian Development Bank, 2021). TESDA (2023) acknowledged these challenges, noting that although over 1.2 million graduates were produced in 2023, many institutions still lacked access to updated tools and technologies. Both Oliquino (2019) and Vinluan (2023) stressed the need for sustained investment in digital infrastructure and capacity-building for trainers. Without adequate resources, the integration of 21st-century skills and the implementation of competency-based and work-based learning modalities may fall short of their intended impact.

As the global workforce evolves under the influence of technological advancement, globalization, and shifting industry demands, Technical and Vocational Education and Training (TVET) systems are increasingly being restructured to meet the challenges of the 21st century. Key thematic areas such as curriculum integration of 21st-century skills, industry linkages, competency-based assessments, work-based learning modalities, and resource adequacy have emerged as critical pillars in shaping responsive and future-ready TVET systems.

Table 2. *Comparative Overview of TVET Systems*

Thematic Category	Global TVET Systems	Philippine TVET System
Curriculum Integration of 21st-Century Skills	Emphasizes soft skills, digital literacy, and adaptability; integrated into competency-based curricula	TESDA integrates communication, critical thinking, and digital skills; implementation varies across regions
Industry Linkages	Strong partnerships with employers for curriculum design and training delivery	TESDA collaborates with industry boards and TICCs; enterprise-based training supports employability
Competency-Based Assessments	Performance-based evaluations aligned with occupational standards; holistic models emerging	TESDA's NC system assesses practical skills; 93% certification rate in 2023
Work-Based Learning Modalities	Dual systems, apprenticeships, internships widely adopted; strong employer involvement	DTS and Apprenticeship programs implemented; limited reach due to logistical constraints
Resource Adequacy	Varies by country; high-income nations invest in modern infrastructure, while LMICs face shortages	TESDA modernizing facilities, but gaps persist in equipment and trainer capacity

Table 2 presents a comparative overview of key thematic dimensions shaping Technical and Vocational Education and Training (TVET) systems globally and in the Philippines. It synthesizes findings across five core areas: curriculum integration of 21st-

century skills, industry linkages, competency-based assessments, work-based learning modalities, and resource adequacy highlighting how these elements are implemented in various international contexts and how the Philippine TVET system aligns with or diverges from these global practices. This structured comparison provides insight into the strengths, challenges, and opportunities for enhancing TVET responsiveness to 21st-century workforce demands.

This comparative overview synthesizes findings from international and Philippine contexts, highlighting how these themes are addressed across different regions and how the Philippines aligns with or diverges from global trends.

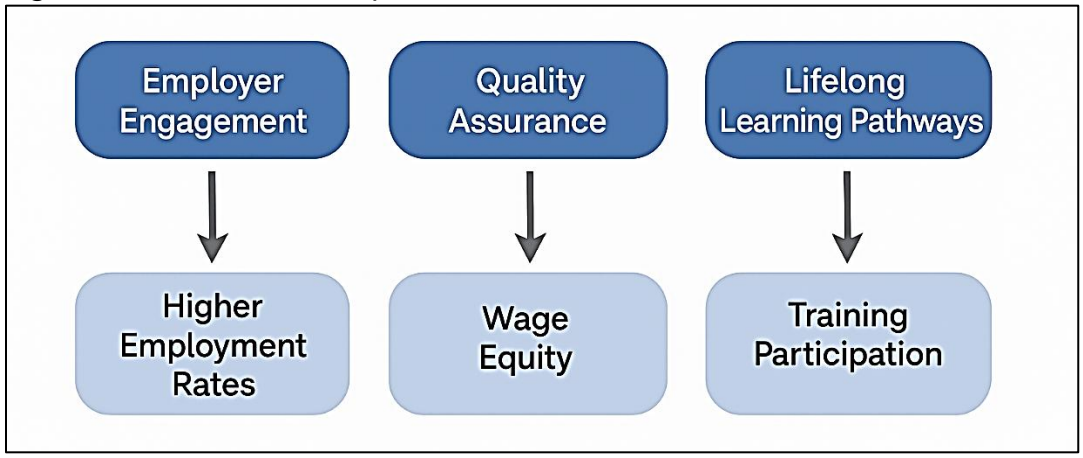
3.7. Global Insights on TVET Quality, Skills Development, and Labor-Market Outcomes

The synthesis of findings from SkillsFuture Singapore (SSG), the Australian Skills Quality Authority (ASQA), the European Centre for the Development of Vocational Training (Cedefop), and combined datasets from the International Labour Organization (ILO) and the Organisation for Economic Co-operation and Development (OECD) highlights interconnected patterns in employment rates, wage differentials, and training participation across diverse regions around the globe. SSG's initiatives had emphasized lifelong learning, employer-led skills forecasting, and systems that incentivize upskilling across career stages, with significant policy shifts toward modular micro-credentials and flexible delivery formats (SSG, 2023). ASQA's evaluations stressed the importance of quality assurance, robust workplace assessment practices, and professional development for trainers to ensure nationally issued qualifications signify workplace-ready competence (ASQA, 2023). Cedefop's research revealed that aligning TVET curricula with evolving industry demands and investing in upskilling has a measurable positive effect on graduate employability and wage parity with academic track graduates (Cedefop, 2022).

Macro-level labor market data from the ILO and OECD reinforced these findings, showing that countries with well-integrated TVET systems and strong employer participation in curriculum design tend to have higher TVET graduate employment rates, narrower wage gaps, and greater participation in lifelong learning initiatives (International Labour Organization & Organisation for Economic Co-operation and Development, 2023). The Philippines may draw from these lessons by embedding micro-credentials, strengthening employer co-design of curricula, and enhancing quality assurance mechanisms to boost labor market alignment.

Figure 2 visualizes the common priorities and measurable impacts shaping global TVET policy and practice, demonstrating how reforms in quality assurance, employer engagement, and flexible learning pathways collectively drive improvements in employment, wage equity, and training participation.

Figure 2. *Priorities and Impact of TVET Reforms Around the Globe*



As illustrated in Figure 2, a common thread emerges: economies that integrate strong employer engagement, continuous quality assurance, and accessible lifelong learning pathways tend to experience higher employment rates for TVET graduates, narrower wage gaps between vocational and academic pathways, and increased participation in skills development across the workforce. The convergence of these elements suggests that sustainable TVET reform must address both supply-side (curriculum, quality standards, delivery modes) and demand-side (labor market alignment, employer co-design, recognition of skills) factors. This integrated approach, observed across varied national contexts, offers actionable insights for the Philippines as it seeks to strengthen TESDA-led initiatives and align with the Sustainable Development Goals and 21st Century Skills agenda.

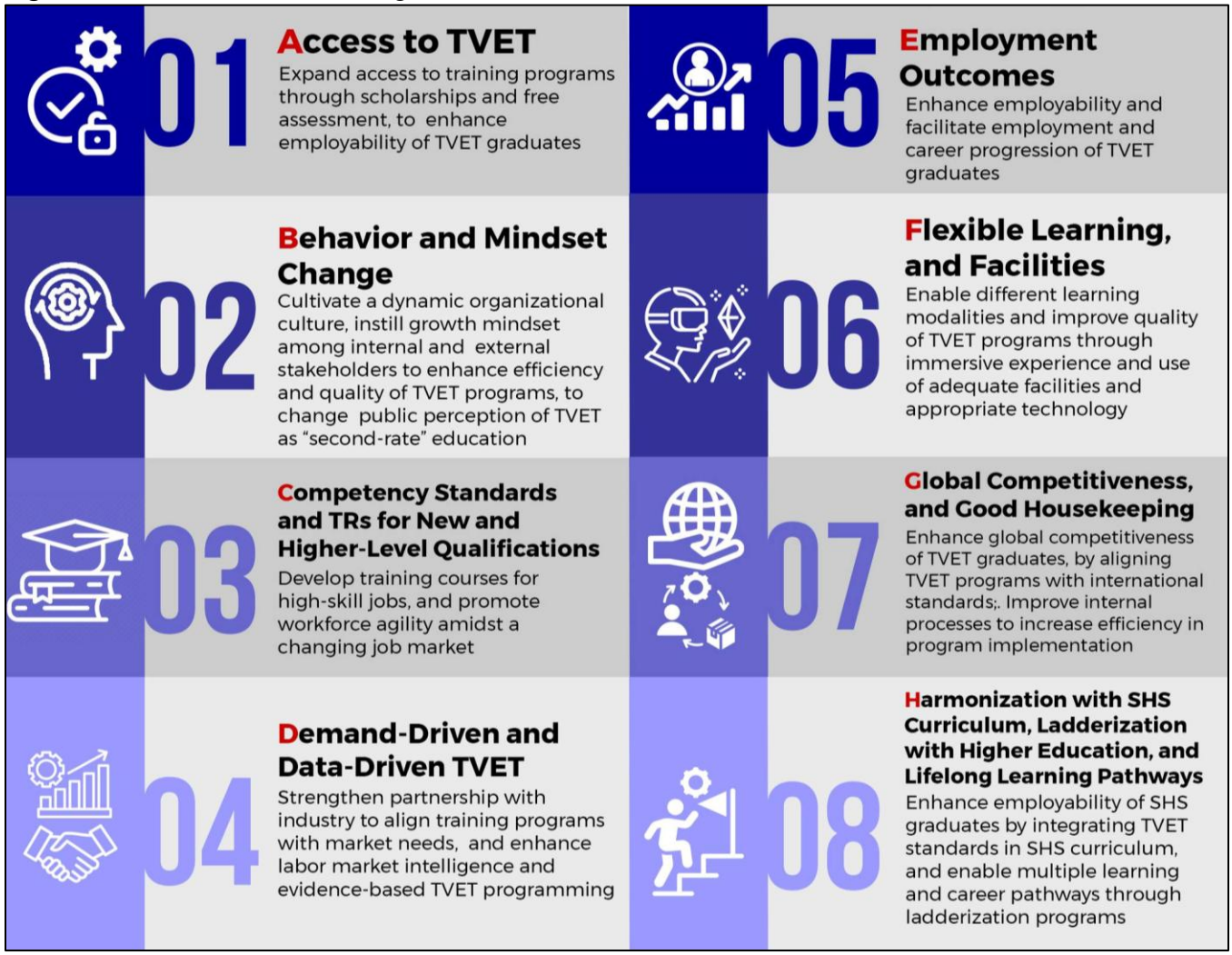
3.8. TESDABest 8-Point Agenda: Strategic Alignment with Global TVET Reforms

The Technical Education and Skills Development Authority (TESDA) is the Philippine government agency mandated to manage and supervise technical education and skills development in the country. Established under Republic Act No. 7796 (the TESDA Act of 1994), TESDA operates as the lead agency in formulating policies, setting competency standards, and implementing programs aimed at developing a globally competitive Filipino workforce.

TESDA's "TESDABest" 8-point agenda offers a comprehensive roadmap for revamping the Philippine TVET system. The agenda includes eight strategic pillars: Access to TVET; Behavior and Mindset Change; Competency Standards and Training Regulations (TRs) for New and Higher-Level Qualifications; Demand-Driven and Data-Driven TVET; Employment Outcomes; Flexible Learning and Facilities; Global Competitiveness; and Good Housekeeping, along with Harmonization with Senior High School Curriculum, Ladderization with Higher Education, and Lifelong Learning Pathways (TESDA, 2024).

TESDABest's eight-pronged agenda is notably aligned with the key drivers of successful TVET systems worldwide: employer engagement, quality assurance, flexible delivery, coherent credentialing, and data-informed adaptiveness. By internalizing these pillars, the Philippine TVET system under TESDA's leadership is positioned to improve training participation, boost employment outcomes, and narrow wage disparities. See Figure 3 for illustration.

Figure 3. *TESDABest 8-Point Agenda*


01
Access to TVET
Expand access to training programs through scholarships and free assessment, to enhance employability of TVET graduates
02
Behavior and Mindset Change
Cultivate a dynamic organizational culture, instill growth mindset among internal and external stakeholders to enhance efficiency and quality of TVET programs, to change public perception of TVET as "second-rate" education
03
Competency Standards and TRs for New and Higher-Level Qualifications
Develop training courses for high-skill jobs, and promote workforce agility amidst a changing job market
04
Demand-Driven and Data-Driven TVET
Strengthen partnership with industry to align training programs with market needs, and enhance labor market intelligence and evidence-based TVET programming
05
Employment Outcomes
Enhance employability and facilitate employment and career progression of TVET graduates
06
Flexible Learning, and Facilities
Enable different learning modalities and improve quality of TVET programs through immersive experience and use of adequate facilities and appropriate technology
07
Global Competitiveness, and Good Housekeeping
Enhance global competitiveness of TVET graduates, by aligning TVET programs with international standards;. Improve internal processes to increase efficiency in program implementation
08
Harmonization with SHS Curriculum, Ladderization with Higher Education, and Lifelong Learning Pathways
Enhance employability of SHS graduates by integrating TVET standards in SHS curriculum, and enable multiple learning and career pathways through ladderization programs

The TESDABest 8-Point Agenda provides a forward-looking structure that aligns closely with global approaches to enhancing TVET. At the outset, its focus on expanding access, strengthening quality assurance, embedding industry linkages, and fostering global competitiveness mirrors internationally recognized best practices in curriculum transformation, labor-market alignment, and lifelong learning. The agenda prioritizes curriculum integration of 21st-century skills through its emphasis on access (Point 1), competency standards (Point 3), and harmonizing with senior-high education (Point 8). These measures ensure that critical thinking, collaboration, communication, digital literacy, and adaptability are woven into TVET (Griffin, 2020; Nugraha et al., 2020; Suarta et al., 2017).

Building on this, industry linkages via demand-driven and data-driven approaches (Point 4) and goals for global competitiveness (Point 7) mirror international examples where employer involvement is integral to curriculum design and quality (Griffin, 2020; Akoobhai, 2023; Halik Bassah & Noor, 2023). These linkages are essential for reducing skills mismatches and improving employability. Furthermore, competency-based assessments are reinforced through standards (Point 3) and employment outcomes (Point 5), aligning with frameworks like Australia's AQF and Singapore's WSQ, which ensure credential relevance through

performance-based evaluation (Poirier & Remsen, 2017; Rosli et al., 2024). In addition, work-based learning modalities, emphasized via flexible learning (Point 6) and learning pathways (Point 8), support integration of apprenticeships and dual training—consistent with models seen in Europe and East Asia that prioritize hands-on skill mastery (Deissinger & Gonon, 2021; Griffin, 2020; Akoobhai, 2023; Rosli et al., 2024). Equally important is resource adequacy. TESDA's inclusion of facilities upgrades (Point 6) and governance improvements (Point 7) reflects the global necessity of modern infrastructure and institutional capacity for delivering quality TVET (Commonwealth Secretariat, 2013; Olusola, 2019; Rosli et al., 2024).

In the Philippine context, integrating these five pillars demonstrated TESDA's intent to elevate TVET into an aspirational and competitive pathway. This approach drew on global models while adapting to local constraints such as resource disparities and varying employer engagement levels (Asian Development Bank, 2021; Oliquino, 2019; Mariano & Tantoco, 2023).

From a global standpoint, research affirmed that TVET systems with integrated 21st-century skills, strong employer collaboration, competency-based assessment, accessible lifelong learning, and sufficient resources achieve better labor-market outcomes: higher employment rates, narrower wage gaps, and greater training participation (SSG, 2023; ASQA, 2023; Cedefop, 2022; International Labour Organization & OECD, 2023). Consequently, the TESDABest 8-Point Agenda not only aligns the Philippines with Sustainable Development Goals 4 (Quality Education) and 8 (Decent Work), but also positions TVET as a mechanism for inclusive growth and resilient workforce development.

4. Summary and Conclusion

Globally, curriculum integration of 21st-century skills including critical thinking, collaboration, digital literacy, and adaptability were increasingly embedded in TVET to meet the demands of technology-driven economies (Griffin, 2020; Nugraha et al., 2020; Halik Bassah & Noor, 2023). However, mismatches between graduate skills and labor market needs remained in some regions (Akoobhai, 2023; Olusola, 2019).

Industry linkages strengthened TVET relevance, with Australia and Malaysia demonstrating strong alignment through structured partnerships, while Nigeria and parts of Indonesia still faced limited employer engagement (Rosli et al., 2024; Nugraha et al., 2020).

Meanwhile, competency-based assessments were replacing traditional testing in many countries, ensuring graduates demonstrate workplace-ready skills. Australia, the U.S., and Malaysia led in standardized, industry-validated evaluations (Poirier & Remsen, 2017; Rosli et al., 2024).

Additionally, work-based learning through apprenticeships and dual training remained central to skills transfer, with Germany, Switzerland, and Australia as benchmarks. Expansion was needed in Indonesia and Nigeria (Deissinger & Gonon, 2021; Nugraha et al., 2020).

Lastly, resource adequacy remained uneven: Australia and Malaysia invested heavily in facilities and technology, while resource gaps in Nigeria, South Africa, and parts of Indonesia limited delivery of industry-standard training (Griffin, 2020; Akoobhai, 2023).

In the Philippine context, these global patterns provided clear direction for strengthening the Technical Education and Skills Development Authority (TESDA) system. The TESDABest 8-Point Agenda aligned well with international best practices, particularly in fostering industry-driven curricula, competency-based training and assessments, and resource enhancement. By deepening industry linkages, embedding 21st-century skills across all qualifications, scaling up work-based learning modalities, and ensuring adequate facilities and technology, the Philippines can better align TVET outcomes with the Sustainable Development Goals and the 21st Century Skills agenda. This integration not only addresses both supply-side factors such as curriculum quality and delivery standards but also demand-side needs, including labor market alignment and employer co-design, thereby enhancing employment rates, wage equity, and workforce participation.

This study's findings affirmed Human Capital Theory (Becker, 1994), underscoring that targeted investments in skills development yield measurable economic and social gains. Globally, TVET systems integrating 21st-century skills, industry linkages, competency-based assessments, work-based learning, and adequate resources produced graduates with stronger employability and adaptability. In the Philippines, the TESDABest 8-Point Agenda provided a strategic framework to embed P21 (Battelle for Kids, 2019) competencies, namely, critical thinking, creativity, collaboration, communication, and digital literacy, while aligning training with labor market needs. This dual focus on technical proficiency and transversal skills positioned Philippine TVET as both a driver of national productivity and a catalyst for inclusive growth in the 21st century.

4.1. Policy Recommendations

The Philippine TVET landscape faces structural and operational challenges, including uneven industry engagement, fragmented competency assessment implementation, and limited scalability of work-based learning programs. While the TESDABest 8-Point Agenda aligns with Sustainable Development Goals and Human Capital Theory principles, its success will depend on targeted reforms that address both systemic and program-level gaps.

Building on the integrated findings, the following policy recommendations are proposed to guide TESDA and its partner institutions in addressing current limitations, leveraging global best practices, and enhancing the Philippine TVET system's capacity to produce graduates with relevant, future-ready skills. These recommendations are designed to be actionable, scalable, and aligned with the TESDABest 8-Point Agenda and the broader objectives of national economic growth and global competitiveness.

4.1.1. Strengthen Industry Linkages and Curriculum Co-Design

Strengthening industry linkages and curriculum co-design is imperative to ensure that training programs remain responsive to evolving labor market demands. TESDA may establish permanent sectoral councils with equal representation from employers, industry associations, and TESDA officials to collaboratively develop curricula and training

regulations. Providing incentives, such as tax benefits and formal recognition programs, may encourage industries to offer apprenticeship and internship slots, thereby expanding opportunities for real-world skills application.

4.1.2. Enhance Competency-Based Assessment Systems

Enhancing competency-based assessment systems may address inconsistencies and ensure that graduates meet standardized skill requirements across regions. This may be achieved by creating uniform assessment tools and criteria, supported by integrated digital platforms to facilitate accessibility and monitoring. Expanding Recognition of Prior Learning (RPL) frameworks may also enable the formal accreditation of skills acquired through informal and non-formal learning pathways, increasing inclusivity and labor mobility.

4.1.3. Scale Up Work-Based Learning Modalities

Scaling up work-based learning modalities may be essential to bridge the gap between classroom instruction and industry expectations. Mandating that a minimum percentage of training hours be spent in authentic workplace environments may ensure that learners gain firsthand exposure to industry operations. Additionally, piloting dual-training models in high-priority sectors such as advanced manufacturing, information and communication technology, and green industries may foster stronger industry–academy collaboration.

4.1.4. Embed 21st-Century Skills in All TVET Programs

Embedding 21st-century skills in all TVET programs may prepare graduates for dynamic, technology-driven work environments. Critical thinking, collaboration, creativity, and digital literacy should be systematically integrated into qualifications, supported by explicit performance standards and assessment rubrics. Partnerships with global TVET leaders may further strengthen faculty capabilities through short-term international exchanges focusing on innovative pedagogy and emerging technologies.

4.1.5. Institutionalize Monitoring and Feedback Mechanisms

Institutionalizing monitoring and feedback mechanisms may ensure continuous improvement and alignment of TVET programs with market needs. Establishing a centralized, real-time labor market information system may enable stakeholders to track graduate employment, wage trends, and skills relevance. Regular employer satisfaction surveys may provide actionable insights to recalibrate training programs, thereby fostering adaptability and sustained relevance in an evolving global economy.

By operationalizing these recommendations, TESDA and Philippine TVET institutions may significantly enhance skills relevance, improve employment outcomes, and ensure that graduates are competitive in both local and global labor markets.

Statement on the Use of AI

Artificial intelligence was employed solely for clerical purposes, including formatting, organizing references, generating figures, and refining grammar and structure. All conceptualization, data analysis, interpretation, and final content decisions were undertaken by the researchers.

Statement of No Conflict of Interest

The authors or researchers declare no conflict of interest related to the conduct and publication of this study.

References

1. Akoobhai, B. (2023). *Research Report on Employer Perceptions of TVET College Graduates and Curriculum First Phase*. TVET Research Programme. https://www.dhet.gov.za/ResearchNew/Employer%20Perceptions%20of%20TVET%20College%20Graduates%20and%20Curriculum%20First%20Phase%20.pdf
2. Arayata, M. C. (2022, October 21). *TESDA says 84% of 2021 TVET grads employed*. Philippine News Agency. https://www.pna.gov.ph/articles/1186761
3. Asian Development Bank. (2021). *Technical and Vocational Education and Training in the Philippines in the Age of Industry 4.0*. https://www.adb.org/sites/default/files/publication/679041/tvet-philippines-age-industry.pdf
4. Australian Skills Quality Authority. (2023). *Annual report 2022–23*. Commonwealth of Australia. https://www.asqa.gov.au/sites/default/files/2023-10/2022%E2%80%9323%20Annual%20Report.pdf
5. Battelle for Kids. (2019). *Framework for 21st century learning definitions*. https://www.battelleforkids.org/networks/p21/frameworks-resources
6. Becker, G. S. (1994). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education* (Third Edition). University of Chicago Press. https://www.nber.org/books-and-chapters/human-capital-theoretical-and-empirical-analysis-special-reference-education-third-edition
7. Cedefop. (2024, May 15). *Work-based learning grows beyond EU targets*. Cedefop. https://www.cedefop.europa.eu/en/news/work-based-learning-grows-beyond-eu-targets
8. Cedefop. (2023, June). *Digitalisation reshapes apprenticeships [Cedefop–OECD symposium summary]*. Cedefop Newsletter No. 131. https://www.cedefop.europa.eu/en/newsletters/cedefop-newsletter-no-131-june-2023
9. Commonwealth Secretariat. (2013). *Analysis of Technical Vocational Education and Training Systems in Five Commonwealth Countries*. https://production-new-commonwealth-files.s3.eu-west-2.amazonaws.com/migrated/inline/TVET%20Report-F.pdf

10. Content Admin. (2024). *TESDA Exceeds Goals with 1.2 Million Graduates, 93% Certification in 2023*. The Philippine News Agency. https://sea-vet.net/news/1489-tesda-exceeds-goals-with-1-2-million-graduates-93-certification-in-2023
11. Creswell, J. W., & Creswell, J. D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). SAGE Publications. https://spada.uns.ac.id/pluginfile.php/510378/mod_resource/content/1/creswell.pdf
12. Deissinger, T., & Gonon, P. (2021). The development and cultural foundations of dual apprenticeships – a comparison of Germany and Switzerland. *Journal of Vocational Education & Training, 73*(2), 197–216. https://doi.org/10.1080/13636820.2020.1863451
13. Essuman, A. K., & Fraikue, F. B. (2024). Assessing TVET Graduates in Hospitality Management: Balancing Theoretical Knowledge and Practical Skills for Industry Success. *Universal Journal of Educational Research, 3*(4), 349–355. https://ejournals.ph/function/reader1/read2/web/reader.php?id=uploads%2Farchive%2FUJER%2FVol.+3+No.+4+%282024%29%2FArticles%2Fa4_349-355.pdf&di=24950
14. Generalao, J., Orbeta, A. C., Esguerra, E. F., & Gonzales, K. G. (2025a). *Does TVET improve employability and job quality? Evidence from the Philippines*. PIDS Discussion Paper Series No. 2025-01. Philippine Institute for Development Studies. https://pids.gov.ph/publications/7321
15. Generalao, J., Orbeta, A. C., Esguerra, E. F., & Gonzales, K. G. (2025b). *Wage effects of TVET in the Philippines: Heterogeneity by education level and field of study*. PIDS Discussion Paper Series No. 2025-02. Philippine Institute for Development Studies. https://pids.gov.ph/publications/7322
16. Griffin, T. (2020). *Workforce-ready: challenges and opportunities for VET*. 29th National VET Research Conference, No Frills. National Centre for Vocational Education Research. https://www.ncver.edu.au/__data/assets/pdf_file/0030/9661008/Workforce-Ready_2020-NO-FRILLS_Discussion-Paper.pdf
17. Halik Bassah, N. S., & Noor, M. A. M. (2023). Employability Skills Needed for TVET Graduates in Malaysia: Perspective of Industry Expert. *Online Journal for TVET Practitioners, 8*(1), 52–59. https://doi.org/10.30880/ojtp.2023.08.01.005
18. International Labour Organization. (2023). *Skills and employability report 2023: Trends and challenges in the global labour market*. ILO. https://www.ilo.org/skills
19. Mariano, R. P., & Tantoco, L. F. (2023). Assessment of Employability Skills of Technical-Vocational Education and Training (TVET) Graduates: Basis for an Enhancement Program. *International Journal of Multidisciplinary: Applied Business and Education Research, 4*(5), 1734–1747. https://doi.org/10.11594/ijmaber.04.05.34
20. National Research Council. (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. The National Academies Press. https://doi.org/10.17226/13398
21. Nugraha, H. D., Kencanasari, R. A. V., Komari, R. N., & Kasda. (2020). Employability Skills in Technical Vocational Education and Training (TVET). *Innovation of Vocational Technology Education, XVI*(1), 1–10. https://ejournal.upi.edu/index.php/invotec/article/view/23509/pdf

22. Oliquino, J. C. P. (2019). 21st Century Skills of Students in a Technical Vocational Education and Training Institution in the Philippines. *Jurnal Pendidikan Progresif, 9*(2), 146–155. https://doi.org/10.23960/jpp/v9i2.201903
23. Olusola, A. O. (2019). *Skills Gap Assessment to Enhance the Delivery of Technical Vocational Education: A Case Study of Electrical Installation Graduates in Ogun and Kaduna States of Nigeria*. University of the West of England. https://core.ac.uk/download/pdf/323906681.pdf
24. Orbeta, A. C., & Corpus, J. M. (2024). *Enhancing Philippine TVET for the 21st century: Challenges and policy directions*. PIDS Policy Notes No. 2024-07. Philippine Institute for Development Studies. https://pids.gov.ph/publications/7265
25. Organisation for Economic Co-operation and Development. (2023). *Education at a glance 2023: OECD indicators*. OECD Publishing. https://doi.org/10.1787/69096873-en
26. Poirier, S. L., & Remsen, M. A. (2017). Technical and Vocational Education and Training: Thriving in Challenging Times. In U. Okolie & A. Yasin (Eds.), *Technical Education and Vocational Training in Developing Nations*, 284–310. IGI Global Scientific Publishing. https://doi.org/10.4018/978-1-5225-1811-2.ch013
27. Rosli, M. S., Saleh, N. S., Atan, A. S., Ali, A. M., Bakar, S. A., & Johar, S. S. (2024). 21st Century Skills and the Digital Economy Readiness Among TVET-Focused University Students in Malaysian Technical University. *2024 IEEE 13th International Conference on Engineering Education (ICEED)*, 1–6. https://doi.org/10.1109/iceed62316.2024.10923781
28. SkillsFuture Singapore. (2023). *Stand Out with New Skills*. Annual report 2022/2023. https://www.skillsfuture.gov.sg/docs/default-source/about-skillsfuture/annual-reports/ssg_ar23_full_8.pdf
29. Suarta, I. M., Suwintana, I. K., Sudhana, I. G. P. F. P., & Hariyanti, N. K. D. (2017). Employability skills required by the 21st-century workplace: a literature review of labour market demand. *Advances in Social Science, Education and Humanities Research, 102*, 337–342. https://scispace.com/pdf/employability-skills-required-by-the-21st-century-workplace-423741s9u6.pdf
30. Technical Education and Skills Development Authority. (2022). *2021 TESDA annual report*. https://tesda.gov.ph/About/TESDA/79
31. Technical Education and Skills Development Authority. (2023, September 18). *Our Tech-Voc Graduates are Job Ready, Assures TESDA Chief*. https://www.tesda.gov.ph/Media/NewsDetail/20273
32. Technical Education and Skills Development Authority. (2024, October 8). *"TESDABest" initiative to further boost Philippine TVET – TESDA chief*. TESDA News. https://tesda.gov.ph/Media/NewsDetail/20373
33. The Times. (2023, March 14). *Skills for the future: How education systems are adapting to the 21st-century workplace*. https://www.thetimes.co.uk/article/skills-for-the-future-education-systems-21st-century
34. UNESCO-UNEVOC. (2013). *Revisiting global trends in TVET: Reflections on theory and practice*. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.

https://unevoc.unesco.org/fileadmin/up/2013_epub_revisiting_global_trends_in_tvet_book.pdf

35. United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations. https://sdgs.un.org/2030agenda
36. Van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2018). 21st-century digital skills instrument aimed at working professionals: Conceptual framework and empirical validation. *Computers in Human Behavior, 72*, 577–588. https://doi.org/10.1016/j.chb.2017.03.010
37. Vinluan, D. M. (2023). Career Readiness of the NCII Caregiving Graduates. *Iconic Research and Engineering Journals, 7*(4), 27–55. https://www.irejournals.com/formatedpaper/1705090.pdf

Ennoia Advances in Social Science, Technology and Education
Vol. **01** | Issue **02** | ISSN **3116-207X**
DOI: **10.5281/zenodo.16946909**

Transformative Learning in the MATATAG English 7 Curriculum: A Content Analysis with Teacher Perspectives

Princess Ann Rodriguez Lastimosa[1,2] & Liezl Marie Bajuyo Dagondon[1]
[1]Northwestern Mindanao State College of Science and Technology, *Philippines*
[2]Department of Education, Ozamiz City School of Arts and Trades, *Philippines*

Abstract

The Department of Education's (DepEd) MATATAG Curriculum, launched in 2024, represents a major reform in Philippine basic education, aiming to address curriculum congestion and misalignment while fostering 21st-century competencies. This study evaluates the Grade 7 English curriculum through the lens of Transformative Learning Theory (TLT) to determine its potential for cultivating critical reflection, dialogue, and action-oriented learning. Employing a qualitative content analysis, the study examined content standards, performance standards, and learning competencies outlined in the MATATAG Curriculum Guide for English, complemented by a review of eight published studies on teachers' perspectives. Results indicated strong alignment between the curriculum and TLT's four phases: disorienting dilemmas, critical reflection, rational discourse, and transformative action. English 7 competencies were found to encourage learners to interrogate multiple perspectives, analyze sociocultural contexts, and produce multimodal outputs that reflect cultural identity and social engagement. Teacher perspectives, however, revealed both enablers and constraints in implementation. Supports included streamlined competencies, authentic communicative tasks, and collegial collaboration, while barriers comprised limited training, resource shortages, heavy workloads, and large class sizes. The findings highlight that while the MATATAG curriculum embodies transformative ambitions, their realization depends heavily on systemic support and teacher preparedness. The study concludes that professional development, resource provision, and participatory curriculum implementation are essential for translating policy intentions into classroom-based transformative learning.

Keywords: MATATAG Curriculum, English 7, Transformative Learning Theory, content analysis, teacher perspectives, curriculum reform, Philippine education

Recommended Citation:

Lastimosa, P. A. R., & Dagondon, L. M. B. (2025). Transformative Learning in the MATATAG English 7 Curriculum: A Content Analysis with Teacher Perspectives. *Ennoia Advances in Social Science, Technology and Education, 01*(02), 123-134. https://doi.org/10.5281/zenodo.16946909

(Lastimosa & Dagondon, 2025)

Correspondence[§§]

[§§]PRINCESS ANN RODRIGUEZ LASTIMOSA
Teacher II
Ozamiz City School of Arts and Trades
Maningcol, Ozamiz City, Philippines 7200
+63 960 640 7676
princessann.lastimosa@deped.gov.ph

1. Introduction

The Philippine education system is undergoing a major reform through the phased rollout of the MATATAG Curriculum, which began in School Year 2024–2025 with Kindergarten, Grades 1, 4, and 7. This initiative is the Department of Education's (DepEd) response to persistent issues in the K to 12 program, including curriculum congestion, redundancy, and misaligned competencies (DepEd, 2024a). The MATATAG Curriculum seeks to "make the curriculum relevant to produce competent and job-ready, active, and responsible citizens" (DepEd, 2024a, p. 3) by streamlining content and emphasizing 21st-century competencies such as critical thinking, collaboration, creativity, and problem-solving. In English, the revised curriculum requires learners to evaluate literary and informational texts, analyze sociocultural contexts, and produce multimodal outputs reflective of cultural identity and global perspectives (DepEd, 2024b).

This reform marks a deliberate shift away from rote memorization toward approaches that value reflection, dialogue, and critical engagement. One theoretical lens particularly suited for evaluating the transformative potential of the curriculum is Transformative Learning Theory (TLT). Developed by Mezirow (1997), TLT posits that learning becomes transformative when individuals experience disorienting dilemmas, critically examine assumptions, engage in rational discourse, and act upon new perspectives. In the English classroom, complex texts may serve as disorienting dilemmas, structured discussions can foster rational discourse, and performance-based tasks allow learners to translate insights into action (Taylor & Cranton, 2012; Brock, 2010). These align closely with the competencies envisioned in the MATATAG curriculum.

Despite these promises, two critical gaps remain. First, the MATATAG Curriculum, being newly implemented, has not yet been systematically examined through established pedagogical theories such as TLT. Second, although the curriculum articulates transformative goals, studies on teachers' perspectives reveal that reforms often face barriers in practice, including limited professional development, resource constraints, and a tendency to revert to traditional, mechanical instruction (Kosonen & Young, 2009; National Education for All Committee [NEC], 2006). These challenges underscore the need to consider not only the intended curriculum but also how teachers interpret and enact it in classrooms.

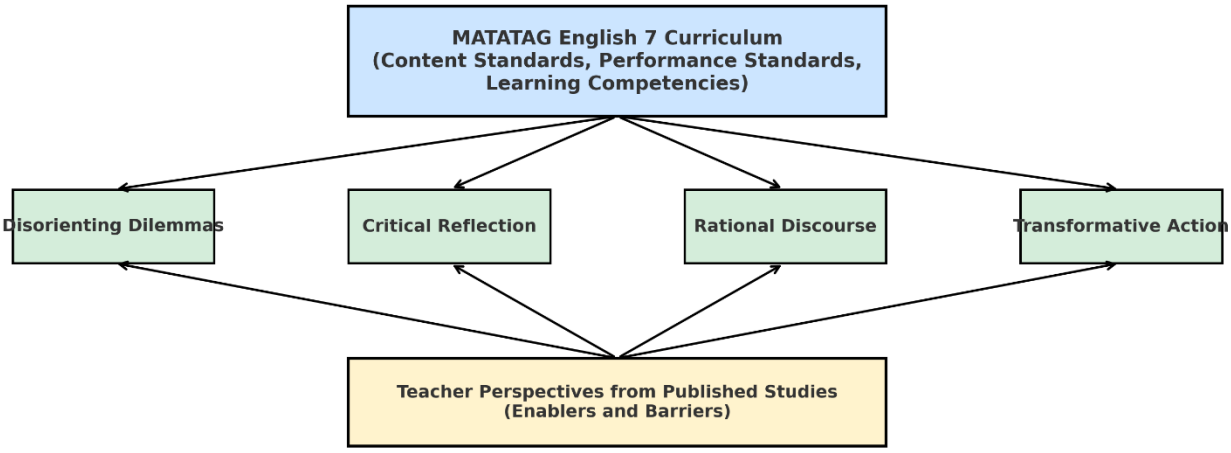
To address these gaps, this study conducts a content analysis of the MATATAG English 7 curriculum guide, complemented by a review of published research on teachers' perspectives in curriculum reforms. Specifically, it investigates how the content standards, performance standards, and learning competencies of English 7 align with the key processes of TLT, and how teacher perspectives from prior studies illuminate opportunities and challenges in enacting these competencies. By bridging curricular intentions with practitioner realities, the study aims to provide policymakers, curriculum developers, and educators with insights into how the MATATAG English 7 curriculum may foster not only linguistic competence but also transformative learning and critical consciousness among Filipino learners.

2. Method

This study employed a qualitative content analysis design to examine the extent to which the MATATAG English 7 curriculum aligns with the principles of Transformative Learning Theory (TLT). Content analysis was chosen because it enables a systematic exploration of how curriculum standards and competencies reflect deeper pedagogical orientations and educational goals (Schreier, 2012). To ensure a grounded interpretation, the analysis of the curriculum was complemented by a review of published studies on teachers' perspectives, thereby situating the intended curriculum within the realities of classroom practice.

The framework of this study, see Figure 1, guided the analysis. At its core, the curriculum document was examined through the four processes of TLT: disorienting dilemmas, critical reflection, rational discourse, and transformative action (Mezirow, 1997). These processes provided the coding categories for analyzing Grade 7 English content standards, performance standards, and learning competencies. The framework also integrated teachers' perspectives, drawn from existing literature on curriculum reforms and English language education, as factors influencing how these transformative goals may be enacted in practice.

Figure 1. *Framework of the Study*



Two data sources were used. The first was the MATATAG Curriculum Guide for English Grades 4 and 7 (DepEd, 2024b), which specifies the standards and competencies for Grade 7 English. The second was a body of published studies documenting teachers' perspectives on curriculum reforms, particularly in the Philippines and comparable Southeast Asian contexts. These studies were identified through database searches (e.g., Google Scholar, Philippine E-Journals, Social Science Research Network) and screened for relevance, with inclusion criteria requiring a focus on MATATAG curriculum, teacher perspectives, curricular implementation, or learner-centered pedagogy published recently.

Data analysis proceeded in three stages. First, all English 7 competencies were coded against the four processes of TLT, producing a mapping of how the curriculum reflects, or falls short of, transformative learning strategies. Second, insights from teacher-focused studies were thematically analyzed to identify opportunities and challenges in curriculum

implementation. Third, the findings from both analyses were integrated, providing a holistic view of the alignment between policy intentions and classroom realities.

Trustworthiness was established through multiple strategies. Triangulation was achieved by combining curriculum analysis with published teacher perspectives, ensuring that findings did not rely solely on policy texts. Dependability was enhanced through transparent coding procedures and clear inclusion criteria for literature. Confirmability was maintained by consistently applying TLT as the analytical lens, while transferability was strengthened by including teacher perspectives from both Philippine and regional contexts that face similar educational challenges.

This study is delimited to the analysis of the intended curriculum of English 7 under the MATATAG program and to teachers' perspectives documented in published research. It does not involve primary data collection from teachers or learners. While this scope limits the findings to an interpretive level, the integration of policy analysis with documented teacher perspectives offers valuable insights into both the theoretical alignment of the curriculum and the challenges of translating transformative aspirations into classroom practice.

3. Results

This section presents the findings of the study in two integrated layers: (a) the alignment of the MATATAG English 7 curriculum with the four core processes of Transformative Learning Theory (TLT), and (b) teacher perspectives from published studies that either support or constrain the realization of these transformative ambitions in practice. The first layer, based on a content analysis of the curriculum guide, highlights how competencies and standards provide opportunities for disorienting dilemmas, critical reflection, rational discourse, and transformative action. The second layer synthesizes insights from eight studies documenting teachers' experiences with the MATATAG curriculum, revealing both enablers, such as authentic communicative tasks and collegial collaboration, and barriers, including limited training, resource shortages, and contextual constraints. Together, these results provide a holistic picture of how the intended curriculum aligns with transformative learning principles and how its classroom enactment is shaped by teacher realities.

3.1. Curriculum–TLT Alignment

The analysis of the MATATAG Curriculum Guide for English 7 (DepEd, 2024b) demonstrates a strong correspondence with the four phases of Transformative Learning Theory (TLT) as articulated by Mezirow (1997). The curriculum is structured in such a way that learners are provided with opportunities to encounter dilemmas, reflect critically, engage in dialogue, and act upon new understandings.

First, competencies that require learners to examine texts from diverse cultural and historical contexts, or to evaluate multiple viewpoints in informational sources, serve as potential disorienting dilemmas. These tasks expose learners to perspectives that may disrupt prior assumptions, prompting them to reconsider how meaning is constructed.

Second, the emphasis on analyzing values, identities, and worldviews embedded in texts reflects the process of critical reflection. By asking students to critique representations of social realities and cultural issues, the curriculum promotes questioning of deeply held beliefs and encourages the development of more inclusive and analytical perspectives.

Third, competencies that involve peer feedback, group discussions, and classroom debates provide spaces for rational discourse. Through these activities, learners articulate and defend their positions, while also listening to and integrating the viewpoints of others. This aligns directly with TLT's focus on dialogue as a means of negotiating new understandings.

Finally, the curriculum's culminating tasks such as the creation of multimodal projects, written essays, and oral presentations illustrate transformative action. These outputs require students to synthesize new insights and apply them in authentic, creative forms that reflect their cultural identity and engagement with broader social issues.

The alignment between the MATATAG English 7 competencies and the four phases of Transformative Learning Theory is illustrated in Figure 2. The analysis revealed that the competencies of the MATATAG English 7 curriculum correspond meaningfully to the four phases of Transformative Learning Theory. As shown in Figure 2, tasks such as examining diverse perspectives, critiquing sociocultural values, engaging in dialogue, and producing multimodal outputs align with the processes of disorienting dilemmas, critical reflection, rational discourse, and transformative action. This alignment illustrates how the curriculum is intentionally structured to cultivate both linguistic competence and critical consciousness.

Figure 2. *Alignment of MATATAG English 7 Curriculum with Transformative Learning Theory*

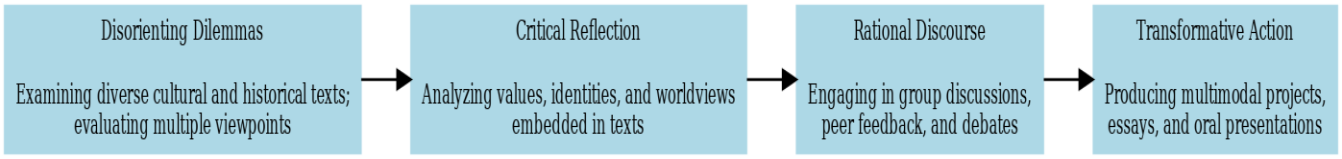

Disorienting Dilemmas
Examining diverse cultural and historical texts; evaluating multiple viewpoints
Critical Reflection
Analyzing values, identities, and worldviews embedded in texts
Rational Discourse
Engaging in group discussions, peer feedback, and debates
Transformative Action
Producing multimodal projects, essays, and oral presentations

Figure 2 illustrates the alignment of the MATATAG English 7 curriculum with the four phases of Transformative Learning Theory (TLT) as proposed by Mezirow (1997). The diagram shows a sequential flow beginning with *Disorienting Dilemmas*, represented by competencies that expose students to diverse cultural and historical texts and multiple perspectives. This leads to *Critical Reflection*, where learners analyze values, identities, and worldviews embedded in texts. The next phase, *Rational Discourse*, highlights collaborative learning through peer feedback, group discussions, and debates. Finally, *Transformative Action* is reflected in culminating tasks such as multimodal projects, essays, and oral presentations, where students synthesize insights into authentic outputs. Collectively, the figure demonstrates how the curriculum is deliberately structured to move learners beyond surface-level comprehension toward reflective, dialogic, and action-oriented learning processes.

Collectively, these findings suggest that the MATATAG English 7 curriculum is intentionally designed to move learners beyond rote comprehension toward a process of transformative learning. Its structure is not limited to the acquisition of linguistic competence but extends to cultivating reflective, dialogic, and action-oriented learners capable of critical consciousness.

3.2. Teacher Perspectives

The review of eight published studies on teacher experiences with the MATATAG curriculum reveals a nuanced picture of support and constraint in its early implementation. On the one hand, teachers consistently acknowledge the curriculum's relevance, particularly its streamlined competencies and stronger focus on communicative and authentic tasks. Alvarado (2023) highlights that the curriculum's emphasis on multiliteracies and real-world text production enhances student motivation and aligns with learner-centered pedagogy. Similarly, Demate et al. (2025) and Bejasa (2025) note that teachers draw strength from collegial collaboration, resource-sharing, and adaptability, fostering conditions for meaningful discourse and reflective practice. In higher-education contexts, Caol-Olan et al. (2024) further document openness to pedagogical change, suggesting that educators recognize the transformative potential of the new curriculum.

However, these supportive dispositions are tempered by structural and resource-related barriers. Several studies report that insufficient training, rushed rollouts, and limited instructional materials create uncertainty and hinder preparedness (Dadul et al., 2025; Motel, 2025; Po, 2025). Large class sizes, high workloads, and inadequate technological support exacerbate these challenges, constraining teachers' ability to facilitate sustained dialogue and critical reflection—key components of transformative learning. Origenes (2025) warns that without collaborative piloting and co-design of modules, the curriculum risks reverting to mechanical instruction rather than enabling authentic engagement.

Table 1 summarizes these teacher perspectives across eight published studies, highlighting how enablers such as collaboration, authentic tasks, and openness to change contrast with challenges like limited training, resource constraints, and large class sizes. The table also maps these factors onto the Transformative Learning Theory (TLT) processes most directly affected, offering a structured lens for interpreting how teachers' experiences may facilitate or hinder the realization of transformative learning in English 7 classrooms.

As shown in Table 1, teacher perspectives reveal a balance of supports and barriers that shape the implementation of the MATATAG curriculum. Supports most frequently noted include the emphasis on authentic and communicative tasks, the streamlining of competencies, and collegial collaboration, all of which create opportunities for reflective practice and discourse. These enablers align strongly with TLT processes such as rational discourse and transformative action. On the other hand, barriers such as insufficient training, inadequate materials, large class sizes, and heavy workloads hinder teachers' capacity to sustain dialogue and critical reflection, thereby constraining the transformative potential of the curriculum. The table illustrates how teacher perspectives, while generally positive

toward reform goals, emphasize that systemic and contextual constraints remain pivotal in determining whether competencies can translate into transformative learning opportunities.

Table 1. *Summary of Teacher Perspectives on MATATAG Curriculum Implementation*

Sources	Supports (Enablers)	Barriers (Constraints)	TLT Processes Most Affected
Alvarado (2023)	Communicative and authentic tasks motivate students; multiliteracies emphasized	Lack of aligned modules and training	Action, discourse
Demate et al. (2025)	Collegial collaboration, peer resource-sharing	Resource shortages; workload pressure	Discourse, reflection
Dadul et al. (2025)	Recognition of streamlined competencies	Limited materials, rushed rollout, heavy workload	Reflection, discourse
Bejasa (2025)	Teacher adaptability; student-centered stance	Connectivity and class size constraints	Discourse
Caol-Olan et al. (2024)	Openness to change; alignment with values education	Need for clearer guidance, resources	Dilemma, reflection
Motel (2025)	Peer support; growing preparedness	Orientation gaps; assessment alignment issues	Reflection, action
Origenes (2025)	Advocates piloting and module co-design	Risks of top-down reform without piloting	All phases
Po (2025)	Leadership support; willingness to adapt	Large classes, monitoring demands, resource scarcity	Discourse, action

Overall, the findings suggest that while teachers endorse the MATATAG curriculum's goals and demonstrate a willingness to adapt, their ability to enact its transformative ambitions depends heavily on systemic support. The most significant enablers are collegial collaboration and alignment with authentic communicative tasks, while the most pressing barriers include resource limitations, lack of professional development, and contextual constraints that restrict reflective and dialogic learning.

4. Discussion

The findings of this study demonstrated that the MATATAG English 7 curriculum is strongly aligned with the four phases of Transformative Learning Theory (TLT), while also revealing that teacher perspectives present both enabling and constraining conditions for its implementation. Together, these insights suggest that while the curriculum's design reflects transformative ambitions, its enactment in classrooms depends significantly on systemic supports and teacher capacity.

4.1. Curriculum as a Transformative Space

The content analysis highlights that the curriculum intentionally integrates opportunities for disorienting dilemmas, critical reflection, rational discourse, and transformative action. For instance, exposing learners to multiple perspectives in literature and informational texts disrupts prior assumptions and creates space for meaning-making beyond rote comprehension. Similarly, competencies requiring engagement with sociocultural contexts and the production of multimodal outputs resonate with the TLT process of integrating reflection into transformative action (Mezirow, 1997). These results confirm earlier arguments that curricular reforms in English should go beyond skills training toward fostering critical literacy and consciousness (Taylor & Cranton, 2012). Thus, at the level of curriculum design, MATATAG reflects global trends in education that position language learning as both communicative practice and cultural critique.

4.2. Teachers as Mediators of Transformation

However, the review of published studies underscores that the realization of these transformative ambitions hinges on teacher perspectives and classroom realities. Teachers generally view the curriculum positively, citing its streamlined competencies, emphasis on authentic tasks, and alignment with learner-centered pedagogy as strengths (Alvarado, 2023; Demate et al., 2025; Bejasa, 2025). Collegial collaboration, adaptability, and openness to pedagogical innovation emerged as crucial enablers that support reflective and dialogic practice. These findings echo international literature which emphasizes the role of teacher agency in mediating reform and translating policy into practice (Taylor & Cranton, 2012).

Yet, the barriers identified: limited training, resource shortages, large class sizes, and heavy workloads represent structural constraints that risk reducing transformative opportunities to mechanical delivery (Dadul et al., 2025; Motel, 2025; Po, 2025). Origenes (2025) cautions that without collaborative piloting and adequate preparation, reforms such as MATATAG may reproduce the same implementation gaps that hampered earlier curricular initiatives. These findings affirm that teacher readiness and systemic support are not peripheral concerns but central determinants of whether transformative learning can be fostered in classrooms.

4.3. Implications for Policy and Practice

The results suggest three key implications. First, professional development must be deepened and sustained, focusing not only on technical aspects of content delivery but also on reflective and dialogic pedagogies central to TLT. Second, structural supports such as manageable class sizes, adequate materials, and access to technology must be prioritized if teachers are to create environments conducive to critical reflection and discourse. Third, participatory approaches in curriculum piloting and module design are necessary to align national reforms with classroom realities, thereby empowering teachers as co-creators of transformative practice.

4.4. Contribution to Research

This study contributes by bridging curricular analysis with teacher perspectives, offering a holistic understanding of reform implementation. While the curriculum is theoretically well-aligned with transformative learning, teacher experiences highlight the conditions necessary to operationalize such alignment. Future research could extend this work through empirical classroom-based studies, observing how competencies are enacted in practice and how students themselves experience transformation.

4.5. Conclusion

This study shows that the MATATAG English 7 curriculum is deliberately structured to foster transformative learning, with its competencies mapping onto the processes of disorienting dilemmas, critical reflection, rational discourse, and transformative action. However, while the curriculum's design signals a strong commitment to critical and reflective pedagogy, teacher perspectives reveal that systemic challenges such as insufficient training, resource limitations, and large class sizes may hinder its transformative potential. The findings underscore that meaningful reform requires more than curricular alignment, it depends equally on enabling conditions that empower teachers as facilitators of transformation. By bridging policy intentions with classroom realities, this study highlights the need for sustained professional development, adequate resources, and participatory approaches in curriculum implementation. Ultimately, the MATATAG curriculum can move Filipino learners beyond linguistic competence toward critical consciousness, provided that both design and enactment are equally prioritized.

4.6. Recommendations

To strengthen the transformative potential of the MATATAG English 7 curriculum, this study recommends sustained professional development that equips teachers with reflective, dialogic, and learner-centered pedagogies aligned with Transformative Learning Theory; the provision of systemic support in the form of adequate instructional resources, manageable class sizes, and access to technology; and the adoption of participatory implementation processes where teachers are engaged as co-creators in piloting, module design, and feedback mechanisms. These measures are essential to ensure that the curriculum's transformative intentions are not only embedded in policy but also meaningfully enacted in classroom practice.

Statement of No Conflict of Interest

The researchers declare no conflict of interest throughout the conduct and publication of this study.

References

1. Alvarado, C. C. P. (2023). Communicative Competence in Spiral Progression Curriculum: A Study Reinforcing the Implementation of MATATAG Curriculum in the Philippines. *Journal of Humanities and Education Development, 5*(6), 11–29. https://doi.org/10.22161/jhed.5.6.3
2. Bejasa, R. C. (2025). Lived Experiences of the Public-School Teachers in the Implementation of Matatag Curriculum. *London Journal of Research in Humanities and Social Sciences, 25*(1), 57–68. https://journalspress.uk/index.php/LJRHSS/article/view/1272
3. Brock, S. E. (2010). Measuring the importance of precursor steps to transformative learning. *Adult Education Quarterly, 60*(2), 122–142. https://doi.org/10.1177/0741713609333084
4. Caol-Olan, B. R. D., Baloloy, A. S. F., Caling, N. B., Ebuen, R. P. A., Labastida, J. J. D., Nicolas, K. F. L., Sampan, A. C. P., & Clavero, Jr. A. B. (2024). THE PERSPECTIVES OF TEACHERS FROM A PRIVATE UNIVERSITY IN METRO MANILA REGARDING THE CHANGES BROUGHT BY MATATAG CURRICULUM. *Cosmos: An International Journal of Art & Higher Education, 14*(1), 38-46. https://cosmosjournals.com/wp-content/uploads/2024/12/CAHE-JJ25-141-9-Caol-Olan-Bench-Russel-D.pdf
5. Dadul, M. A. C., Labutap, R. G., Pag-Arigon, N. B., Dacuno, K. J. D., & Biasong, M. D. R. (2025). Teachers' Sentiments on the Implementation of Deped Matatag Curriculum. *East Asian Journal of Multidisciplinary Research, 4*(6), 2551-2568. https://doi.org/10.55927/eajmr.v4i6.192
6. Demate, D. R. B., Aclis, M. S., Catbagan, F. C. P., Molina, G. G., Ramos, N. U., & Patacsil, F. (2025). Teacher perspectives on MATATAG curriculum: Challenges and collaborative solutions. *Multidisciplinary Reviews, 8*(11), 2025351. https://doi.org/10.31893/multirev.2025351
7. Department of Education. (2024a). *DepEd Order No. 010, s. 2024: Policy guidelines on the implementation of the MATATAG Curriculum*. https://www.deped.gov.ph/wp-content/uploads/DO_s2024_010.pdf
8. Department of Education. (2024b). *MATATAG Curriculum: English Grades 4 & 7*. https://www.deped.gov.ph/wp-content/uploads/MATATAG-ENGLISH-CG-G4-and-7.pdf
9. Kosonen, K., & Young, C. (2009). *Mother tongue as a bridge language of instruction: Policies and experiences in Southeast Asia*. SEAMEO. https://documents1.worldbank.org/curated/en/527021468104056444/pdf/563290PUB0Box31guage0of0Instruction.pdf
10. Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education, 1997*(74), 5–12. https://doi.org/10.1002/ace.7401
11. Motel, G. M. (2025). Teachers' Narratives on Preparedness and Content Delivery in the Implementation of the Matatag Curriculum. *Jurnal Inovasi Pendidikan, 3*(2), 73–107. https://doi.org/10.60132/jip.v3i2.487

12. National Education for All Committee. (2006). *Basic Education Sector Reform Agenda (2005-2010)*. DepEd. https://depedkoronadalcity.wordpress.com/wp-content/uploads/2012/10/basic-educational-sector-reform-agenda-brochure.pdf
13. Origenes, R. J. (2025). *From the Most Essential Learning Competencies (MELC) to MATATAG Curriculum: A Call for Collaborative Piloting for Curriculum Innovation, Selection of English Competencies, and Module Design*. Social Science Research Network. https://doi.org/10.2139/ssrn.5159421
14. Po, E. C. (2025). Challenges Faced by School Heads and Teachers in the Implementation of the MATATAG Curriculum and Performance of Students. *INTERNATIONAL JOURNAL OF ADVANCED MULTIDISCIPLINARY STUDIES, V*(3), 88-98. https://www.ijams-bbp.net/wp-content/uploads/2025/04/ENARCISA-C.-PO.pdf
15. Schreier, M. (2012). *Qualitative content analysis in practice*. SAGE Publications. https://www.daneshnamehicsa.ir/userfiles/files/1/9-%20Qualitative%20Content%20Analysis%20in%20Practice%20(2013,%20SAGE%20Publications).pdf
16. Taylor, E. W., & Cranton, P. (Eds.). (2012). *The handbook of transformative learning: Theory, research, and practice*. Jossey-Bass. https://content.e-bookshelf.de/media/reading/L-593949-d173cb0174.pdf